RECOMMENDED CONTRACT CLAUSES, SPECIAL CONTRACT REQUIREMENTS AND GUIDE SPECIFICATIONS FOR FIRM FIXED-PRICE DESIGN-BUILD CONSTRUCTION CONTRACTS

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PART 1. INTRODUCTION

1.1 "Design-Build" (D-B) is a specialized type of construction contract under Part 36 of the Federal Acquisition Regulations (FAR). Design-Build construction contracts integrate the primary services of the contract - construction of a complete and usable facility - with incidental design and design related services. Since these are not "Architect-Engineer" contracts under the FAR Subpart 36.6, Brooks Act, selection procedures, the contract does not include some of the formal A-E contract clauses. However, it is necessary to address many of the topics normally covered by standard A-E contract clauses, in a design-build construction contract.

1.2 Design-Build contracts are generally competitively negotiated, firm fixed-price construction contracts, awarded using the procedures in Parts 15 and 36 of the FAR. Of course, they may also be negotiated under sole source procedures in Part 19 with small disadvantaged businesses participating in the Small Business Administration's 8(a) Program.

1.3 The Request for Proposal (RFP) is generally organized in accordance with Appendix A of the "Technical Instructions (TI) 800-03: "Technical Requirements for Design-Build", available on-line in the USACE Technical References. For your convenience, I have included Appendix A at the end of this Part 1.

1.4 As of February 2000, the FAR and the Defense FAR Supplement (DFARS) don't presently contain any special guidance concerning Clauses or other provisions to be included in design-build solicitations and contracts.

1.5 Any clause identified as a FAR or DFARS clause should be incorporated into Section 00700, Contract Clauses, of the solicitation. Incorporate any new clause or clause identified as a modification of a FAR or DFARS into Section 00800, Special Contract Requirements, of the solicitation.

1.6 The Clauses, Special Contract Requirements (SCR's) and modified Guide Specifications in this material were adapted from the "Design-Build and Military Construction" Prospect Course Manual. This collection is specifically recommended for inclusion in Design-Build contracts. We developed many of the Special Contract Requirements by modifying standard A-E or construction clauses for use in Design-Build contracts. The Guide Specifications for "SUBMITTALS", "CONTRACTOR'S SCHEDULE", and "CONTRACTOR QUALITY CONTROL SYSTEM" have been modified to include design responsibilities. We've also included a sample Specification Section "DESIGN AFTER AWARD." Finally, we've included some guidance on corresponding information to address in the "PROPOSAL SUBMISSION REQUIREMENTS" and "PROPOSAL EVALUATION CRITERIA."

1.7 Generally, design-build construction contracts include all the standard construction clauses and SCR's, except those modified or adapted clauses, contained herein.

1.8 The author wishes to thank the following individuals for their input and collaboration with him in developing the Corps of Engineers' Prospect Course, "Design Build and Military Construction", which much of this material is based on.

Laura Meeker, USACE Office of Counsel
Mark Grammer, USACE Military Programs, Engineering and Construction
Robin Woodruff, Louisville District
Rick Kendrick, Huntsville Engineering and Support Center
Phil Roybal, Albuquerque District

1.9 The author is particularly indebted to Ron Kalifeh and David Green of the Corps of Engineers, Mobile District. The author freely adopted and adapted several sections and clauses from their original RFP material, used in successful Design-Build projects. In addition, David originally developed the referenced TI 800-03, Technical Requirements for Design-Build."

1.10 Finally, credit is also due to the Norfolk District of the COE, which developed and maintains the "A-E Instructions for Design-Build Military Family Housing Construction", an authoritative source for RFP's for MFH projects. The material in this Guide is compatible with the AEI for Military Family Housing.

HAPPY SAILS!
Joel T. Hoffman, P.E.

CEMP-E TI 800-03 TECHNICAL REQUIREMENTS
FOR DESIGN-BUILD, 1 JULY 1998
APPENDIX A - SAMPLE PROJECT TABLE OF CONTENTS
FOR DESIGN-BUILD RFP

PROPOSAL REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT:

00010 SOLICITATION, OFFER, & AWARD - SF 1422 BIDDING SCHEDULE
00100 INSTRUCTIONS, CONDITIONS & NOTICES TO OFFERORS
00110 SUBMISSION REQUIREMENTS AND INSTRUCTIONS
00120 PROPOSAL EVALUATION AND CONTRACT AWARD
00600 REPRESENTATIONS AND CERTIFICATIONS
00700 CONTRACT CLAUSES
00800 SPECIAL CONTRACT REQUIREMENTS

SPECIFICATIONS:

DIVISION 01 GENERAL REQUIREMENTS
01010 GENERAL PROJECT DESCRIPTION AND GENERAL DESIGN REQUIREMENTS
01011 SPECIFIC ENGINEERING AND DESIGN CRITERIA
01012 DESIGN AFTER AWARD
01013 GENERAL CONSTRUCTION REQUIREMENTS
01300 SUBMITTAL DESCRIPTIONS
01310 CONTRACTOR PREPARED NETWORK ANALYSIS SYSTEM (NAS)
01440 CONTRACTOR QUALITY CONTROL
01561 ENVIRONMENTAL PROTECTION

The following specifications are for design requirements. They specify minimum requirements that shall be required in the final design and construction of this project. The Design-Build Contractor shall prepare final specifications, incorporating these requirements as specified in Section:01012 DESIGN AFTER AWARD.

DIVISION 02 SITEWORK
02513 CONCRETE PAVEMENT FOR AIRFIELDS
02580 PAVEMENT MARKINGS
etc.

DIVISION 16 ELECTRICAL
16526 AIRFIELD LIGHTING AND VISUAL NAVIGATION AIDS
etc.

APPENDIX (examples):
APPENDIX A - Photographs
APPENDIX B - Geotechnical Information

PART 2. NON-TRADITIONAL ROLES AND RESPONSIBILITIES:

2.1 Design-build contracts drastically alter the traditional roles and responsibilities of the Owner, the Contractor and the Designer. Please note that there are no inherent "design-build" roles and responsibilities, simply because a contract is called "design build". Several different proponent organizations have developed model or recommended "design-build contract" formats. Naturally, the authoring organization formulates their model to minimize the risk of allocation of any additional design responsibility to their constituency. Therefore, it is critically important that the design-build contract clearly define the non-traditional roles and responsibilities for both the Government and the Design-Build Contractor.

2.2 For instance, the Owner (here, the Government) is responsible for clearly expressing the intent of the design and for the adequacy and completeness of the "facility design criteria" in the Request for Proposals (RFP). The Owner must also cooperate with the D-B Contractor, so as not to slow down or otherwise hinder the Contractor's schedule. The D-B contract duration covers completion of the design, in addition to equipment and material acquisition and construction. A D-B contract may also allow some concurrent design and construction activities, termed "fast tracking". In order to avoid hindering or unnecessarily slowing progress, the Owner must respond much quicker to needs of the D-B Contractor than in a standard construction contract.

2.3 The D-B Contractor is responsible for the technical adequacy of the design furnished, including constructability, extensions of the design, and often operability and maintainability issues (whether specified in the design criteria or clearly described in the RFP "design intent"), in addition to its typical construction quality responsibilities.

2.4 Whether the prime is the designer of constructor – or both - its role in a D-B contract is expanded. Its role now includes management and control of quality, cost and integrated schedule for design, permit preparation (sometimes permit application), material and equipment acquisition, construction, training for operation and maintenance, inspection, turnover and warranty. Sometimes operation and maintenance phases are included under the umbrella contract.

2.5 The Contractor employs the designer of record (DOR), not the Owner. The DOR(s) must now personally ensure the integrity of all extensions to their design and that all equipment and materials meet the design and design criteria requirements. That this is a Contractor function, not a Government function, is a significant role reversal from conventional design bid build construction.

2.6 The Government must not assume responsibility for the design adequacy by "approving" design or construction submittals, except to approve requested deviations from the contract, when acceptable and appropriate. The Owner's role changes from reviewing designs and submittals to approve for technical adequacy to review for conformance to the contract (the RFP and the D-B's accepted proposal).

PART 3 COST LIMITATION CLAUSES

3.1 We should usually identify the maximum amount of funds available for award in design-build contracts. To do this, include one of the Clauses below in Section 0100, "INSTRUCTIONS TO OFFERORS."

3.2 Why identify the funds available? Unless the design criteria in the RFP Scope of Work are completely specified in a prescriptive manner, the RFP will allow the D-B certain choices in its approach to the design and construction solutions. Where the scope of work is performance oriented or otherwise allows such choices, the Offerors must know what the Owner's budget is, in order to fully define the scope of work. This is very similar to the standard practice of directing A-E firms to design the full scope of a project within a cost ceiling. There is no prohibition against identifying the funds available to the public.

3.3 Identifying the funds available is used in conjunction with defining the "Basis of Award." E.g., "award will be made to the offeror with the best technically conforming proposal within the funds available"; or "price and quality factors are of equal importance - award to anyone other than the lowest technically acceptable offer must provide sufficient advantage to justify the additional cost". In these cases real or perceived competition will drive offerors to provide the best proposal for the money. Where price and quality are considered equal and a high quality facility can be built for under the cost ceiling, competition will naturally tend to maintain lower prices – gold plating (providing extra features with little added value) will be discouraged. If all offerors actually gold plate their designs, we can verify during discussions and bargain to get unnecessary features removed. In such a case, we could even amend the solicitation during discussions to lower the funds available.

3.4 The funds available must also be identified when the quality factors are considered more important than price and there is flexibility allowed in the design or construction solution.

3.5 If the Scope of Work is so prescriptive that little or no innovation or no choice in design solution is available, we would probably make price most important in a trade-off process or we would state that award will be made to the lowest technically acceptable, responsible offeror. In such case, there probably is no need to identify the funds available in the RFP. If the offers come in over the funds available, we could identify the ceiling during discussions and bargaining. There would probably be a need to adjust the scope or revise prescriptive design criteria in such case.

3.6 We can cite a definite cost ceiling for award of the initial contract, including any options exercised at award. If more funds are later made available, options could be awarded beyond the cost limitation. However, sometimes we discover, despite the offerors' and our best efforts during negotiations to reduce costs, that we can't make an award for a complete

and usable facility within the funds ceiling. Then we must reduce scope or mutually agree with all responding offerors to amend the Solicitation to raise the ceiling. If the cost significantly exceeds the advertised funds limitation, it would be likely be necessary to cancel the solicitation and re-advertise with increased funding and/or revised scope.

3.7 We recommend against adding any wording to the solicitation that the Government will not evaluate any offers which exceed the cost limitation. Sometimes, some or all offerors can't meet the cost limitation. An offeror usually doesn't know its actual costs until just before the proposal submission deadline. The Offeror might not have time to revise its technical approach before the deadline. The firm is well aware they are submitting an unacceptable proposal. They hope the Government will conduct discussions and will allow them an opportunity to get within the budget.. The Government has a great opportunity to salvage the project through discussions. Discussions will often reveal weaknesses or errors in the RFP, which caused offerors or their subcontractors to include contingencies. Discussions are also useful in working with the offerors to identify cost saving ideas to incorporate into the RFP by amendment, if acceptable to the using agency.

3.8 Use the "Cost Limitation – Target Ceiling" Clause if the limitation is not an inflexible ceiling. This clause allows the Government to arrange for additional funding, if necessary to make an award. The offerors will know your target. If they can stay at or under the ceiling, competition will drive costs down. The Government has some flexibility to award above the ceiling if offerors can't meet it or if the best proposal costs a reasonable bit more than the target ceiling.

COST LIMITATION - JUNE 1999

The contract award for design and construction shall not exceed $_____ for this project. Offerors are under no obligation to approach this amount.

(End of Clause)

COST LIMITATION – TARGET CEILING - JUNE 1999

The target ceiling for contract award for design and construction is $_____, based on the funds made available for this project. The Government cannot guarantee that additional funds will be made available for award. Offerors are under no obligation to approach this ceiling.

(End of Clause)

PART 4. SPECIAL CONTRACT REQUIREMENTS.

4.1 Special Contract Requirements are contained in Section 0800 of the RFP. Because the D-B RFP includes design services and because the resulting contract includes the selected proposal, additional Special Contract Requirements (SCR's) have been developed to add to the usual set of SCR's used in design/bid/build competitively bid (IFB) construction solicitations.
The SCR's, listed below, have been specifically developed to define the non-traditional roles and responsibilities of the various parties in the D-B contract.

TABLE II
Recommended SCR's to be Included in Section 0800 of the D/B Contract:

1. Design Build Contract-Order of Precedence
2. Proposed Betterments (Optional)
3. Key Personnel, Subcontractors, and Outside Associates or Consultants)
4. Responsibility of the Contractor for Design
5. Warranty of Construction Work
6A. Sequence of Design/Construction (Can Alternately be Included in Section 01012)
6B. Sequence of Design/Construction (Fast Track)- (Can Alternately be Included in Section 01012)
7. Constructor's Role During Design (Can alternately be included in Section 011012)
8. Recommended Insurance Coverage (Optional)
9. Training (Can be included in a Technical Section)
10. Design Conferences (Can Alternately be Included in Section 01012)
11. Value Engineering After Award
12. Partnering (Highly Recommended)

4.1.1 DESIGN-BUILD CONTRACT-ORDER OF PRECEDENCE:

4.1.1.1 This SCR defines what constitutes the Contract, the order of precedence in the event of inconsistencies and further states that the design documents produced after award are "deliverables", not formally part of the contract, themselves.

4.1.1.2 It is essential that this SCR be included in the D-B contract. DO NOT USE the standard clause "ORDER OF PRECEDENCE-UNIFORM CONTRACT FORMAT" (FAR 52.215-8). This Clause is intended for use in service and supply contracts, using the Uniform Contract Format. The standard clause puts the order of precedence of the proposal above the Section "C", scope of work (SOW), in the event of inconsistencies or conflicts between the two. The SOW in the UCF format is usually more general in nature than the design and construction criteria in a D-B construction contract.

4.1.1.3 In design-build construction, we use the opposite philosophy. The RFP is the minimum standard, except where the Offeror's best value proposal exceeds the minimum RFP

requirements. Then, the "betterment" in the proposal becomes the new minimum standard. In a case where the proposal deviates from the RFP minimum, the RFP governs.

4.1.1.4 This benefit to the Government comes at a price. The Government has an inherent legal duty to carefully read and evaluate the proposal for minimum RFP compliance prior to selection and award. Your RFP Section 00110, "PROPOSAL SUBMISSION REQUIREMENTS", should warn offerors not to deviate from the RFP requirements in their proposals. Your description of the basis of award in RFP Section 00120, "PROPOSAL EVALUATION CRITERIA" should state the requirement for successful proposal to be in conformance with the RFP requirements. Proposal deviations and deficiencies must be resolved prior to final proposal submission and award. If a proposal deviates from the RFP but is considered a good idea or approach, the Government must amend the solicitation to allow the feature. This keeps all offerors on a level playing field.

4.1.1.5 The Government cannot simply rely on the language of the D-B Order of Precedence SCR to avoid careful proposal evaluation. The intent of this clause is to establish an order of precedence in cases of not so obvious conflict, discovered after award.

4.1.1.6 The SCR defines the design products as "deliverables" under the contract. With the Government's concurrence, the Contractor may correct design errors and otherwise modify the design, as long as the design still complies with the RFP and accepted proposal. Otherwise, every time a line on a drawing or specification detail changes, a modification would be necessary. The Government can otherwise use "configuration control procedures" in Section 01012 (Design After Award) for requests, approval and tracking of non-contractual changes to the design documents.

SCR___ DESIGN-BUILD CONTRACT-ORDER OF PRECEDENCE - AUG 1997

(a) The contract includes the standard contract clauses and schedules current at the time of award. It also entails: (1) the solicitation in its entirety, including all drawings, cuts and illustrations, and any amendments during proposal evaluation and selection, and (2) the successful Offeror's accepted proposal. The contract constitutes and defines the entire agreement between the Contractor and the Government. No documentation shall be omitted which in any ways bears upon the terms of that agreement.

(b) In the event of conflict or inconsistency between any of the provisions of the various portions of this contract, precedence shall be given in the following order:

(1.) Betterments: Any portions of the Offeror's proposal which both meet and exceed the provisions of the solicitation

(2.) The provisions of the solicitation. (See also Contract Clause: SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION.)

(3.) All other provisions of the accepted proposal.

(4.) Any design products, including but not limited to plans, specifications, engineering studies and analyses, shop drawings, equipment installation drawings, etc. These are "deliverables" under the contract and are not part of the contract itself. Design products must conform to all provisions of the contract, in the order of precedence herein.

(End of Clause)

PROPOSED BETTERMENTS (OPTIONAL)

4.1.2.1 This is an optional clause for organizations that wish to use a process to formally list features of the proposal which are considered "betterments", as defined above. Some Districts feel that it is helpful in administering the contract to highlight all betterments in one list. Note that the proposal independently is part of the contract and that the list is merely administrative in nature. A Betterment, which may have been overlooked in the formal list, is nonetheless a contract requirement. A carefully prepared list helps bring betterments to the attention of contract administrators and design reviewers. However, it could also discourage a careful reading of the proposal during contract performance.

SCR___ PROPOSED BETTERMENTS – AUG 1997

(a) The minimum requirements of the contract are identified in the Request for Proposal. All betterments offered in the proposal become a requirement of the awarded contract.

(b) A "Betterment" is defined as any component or system, which exceeds the minimum requirements, stated in the Request for Proposal. This includes all proposed betterments listed in accordance with the "Proposal Submission Requirements" of the Solicitation, and all Government identified betterments.

(c) "Government identified betterments" include the betterments identified on the "List of Accepted Project Betterments" prepared by the Proposal Evaluation Board and made part of the contract by alteration, and all other betterments identified in the accepted Proposal after award.

(End of Clause)

4.1.3. KEY PERSONNEL, SUBCONTRACTORS AND OUTSIDE ASSOCIATES OR CONSULTANTS.

4.1.3.1 Contract Clause 52.244-4 "Subcontractors and Outside Associates and Consultants", has been modified by adding the term "Key Personnel".

4.1.3.2 The successful Offeror's proposal is part of the contract. This clause is intended to discourage "bid shopping" or "bait and switch" tactics by the Contractor after award of the contract. The Contractor must request permission to substitute those key

personnel or key subcontractors it identified in its proposal. The accepted proposal establishes the new minimum standard (assuming that it was in full compliance with the RFP requirements). The Contractor will submit information in the same detail as the original proposal for the Government to evaluate. The Government should not approve any substitute that is not equal in all aspects to the originally proposed person or firm.

4.1.3.3 Since the contract was formulated by negotiation, prices were considered in the selection of the successful Offeror. It can be argued that the Government may demand a credit for a substitution, as consideration for the switch, where it appears that the substitution is the result of "bid shopping" or "bait and switch" tactics. There is no requirement for a price increase, because the Contractor established the minimum level of competency and the price the Government is expected to pay for that competency in its proposal. The proposal is the new required minimum standard, where identified performance surpassed the minimum RFP requirements. Anti-bid shopping clauses are common and enforceable in State, Local and commercial contracting

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SCR___ KEY PERSONNEL, SUBCONTRACTORS AND OUTSIDE ASSOCIATES OR CONSULTANTS - AUG 1997

In connection with the services covered by this contract, any in-house personnel, subcontractors, and outside associates or consultants will be limited to the individuals or firms that were specifically identified and agreed to during negotiations. The contractor shall obtain the Contracting Officer's written consent before making any substitution for these designated in-house personnel, subcontractors, associates, or consultants.

(End of Clause)

4.1.4 RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN

4.1.4.1 This SCR is based on FAR Clause 52.236-0023, "Responsibility of the Architect-Engineer Contractor (Apr 1984)". The clause has been re-named for design-build. The words "non-construction services" were added to distinguish design responsibilities from warranty of the construction, which is covered under the "Warranty of Construction Work" SCR. The SCR also requires the D-B to correct the construction resulting from the faulty design.

SCR___ RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN - FEB 2000

(a) The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other non-construction services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiency in its designs, drawings, specifications, and other non-construction services and perform any necessary rework or modifications, including any damage to real or personal property, resulting from the design

error or omission.

(b) Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contact shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract. The Contractor shall be and remain liable to the Government in accordance with applicable law for all damages to the Government caused by the Contractor's negligent performance of any of these services furnished under this contract.

(c) The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law.

(d) If the Contractor is comprised of more than one legal entity, each entity shall be jointly and severally liable thereunder.

(End of Clause)

4.1.5 WARRANTY OF CONSTRUCTION WORK

4.1.5.1 USACE modified the standard "Warranty of Construction" Clause by deleting various references to "design furnished". That wording limited the warranty for design services to one year.

***SCR___* WARRANTY OF CONSTRUCTION WORK – AUG 1997**

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (1) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

(b) This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

(c) The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of--

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defect of equipment, material, or workmanship.

(d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.

(e) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall--

(1) Obtain all warranties that would be given in normal commercial practice:

(2) Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and

(3) Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

(h) In the event the Contractor's warranty under paragraph (b) of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

(i) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

(j) This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

(End of Clause)

4.1.6 SEQUENCE OF DESIGN/BUILD CONSTRUCTION

4.1.6.1 This SCR may also be referred to as "Sequence of Work". Two different Special Contract Requirements were developed to address this issue. Use the first SCR when all design or most of the design must be completed prior to allowing construction to begin. Use the second SCR when allowing "fast-track" design-build. Fast track is a term used to describe design and construction sequencing when the D-B incrementally completes and submits portions of the design, in "design packages", for Government review. Once the

Government completes its review and all review comments are resolved, the ACO/COR will clear that design package for construction . Thus, in fast track design-build, design and construction can proceed concurrently.

4.1.6.2 The D-B RFP will include only one of the two SCR's. These clauses are highly recommended for use in a statement of work or in the SCR's for Indefinite Delivery/Indefinite Quantity ("ID/IQ") RFP's. This information can also be alternately be addressed in Section 01012- "DESIGN AFTER AWARD".

SCR___ SEQUENCE OF DESIGN-CONSTRUCTION – AUG 1997

(a) After receipt of the Contract Notice to Proceed (NTP) the Contractor shall initiate design, comply with all design submission requirements as covered under Division 01 General Requirements, and obtain Government review of each submission. No construction may be started, <with the exception of....clearing, etc...> until the Government reviews the Final Design submission and determines it satisfactory for purposes of beginning construction. The ACO or COR will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the ACO or COR, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

(b) If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government.

(c) No payment will be made for any in-place construction until all required submitttals have been made, reviewed and are satisfactory to the Government.

(End of Clause)

4.1.6.3 Use the following Special Contract Requirement for fast track design-build contracts, in lieu of the above clause. This material can alternately be included in Section 01012-Design After Award.

SCR___ SEQUENCE OF DESIGN-CONSTRUCTION (FAST TRACK)

(a) After receipt of the Contract Notice to Proceed (NTP) the Contractor shall initiate design, comply with all design submission requirements as covered under Division 01 General Requirements, and obtain Government review of each submission. The contractor may begin construction on portions of the work for which the Government has reviewed the final design submission and has determined satisfactory for purposes of beginning construction. The ACO or COR will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the

opinion of the ACO or COR, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

(b) If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government.

(c) No payment will be made for any in-place construction until all required submitttals have been made, reviewed and are satisfactory to the Government.

(End of Clause)

4.1.7 CONSTRUCTOR'S ROLE DURING DESIGN

4.1.7.1 This SCR outlines the role of the Contractor's key construction management staff during the design process. It is especially necessary to identify this scope of services in ID/IQ contracts.

SCR___ CONSTRUCTOR'S ROLE DURING DESIGN – JUN 1998

The Contractor's construction management key personnel shall be actively involved during the design process to effectively integrate the design and construction requirements of this contract. In addition to the typical required construction activities, the constructor's involvement includes, but is not limited to actions such as: integrating the design schedule into the Master Schedule to maximize the effectiveness of fast-tracking design and construction (within the limits allowed in the contract), ensuring constructability and economy of the design, integrating the shop drawing and installation drawing process into the design, executing the material and equipment acquisition programs to meet critical schedules, effectively interfacing the construction QC program with the design QC program, and maintaining and providing the design team with accurate, up-to-date redline and as-built documentation. The Contractor shall require and manage the active involvement of key trade subcontractors in the above activities.

(End of Clause)

4.1.8 RECOMMENDED INSURANCE COVERAGE

4.1.8.1 This is an optional SCR to emphasize the D-B's liability for the adequacy of the design in the D-B contract.

SCR___ RECOMMENDED INSURANCE COVERAGE

The Design-Build Contractor's attention is invited to the contract requirements concerning "RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN" and "WARRANTY OF CONSTRUCTION WORK". These requirements vest in the Contractor complete responsibility for the professional quality, technical accuracy, and coordination of all design, drawings, specifications and other work or materials furnish by his in-house or consultant forces. The Design-Build Contractor must correct and revise any errors or deficiencies in his work, notwithstanding any review, approval, acceptance or payment by the Government. The Contractor must correct and change any work resulting from his defective design at no additional cost to the Government. The requirements further stipulate that the Design-Build Contractor shall be liable to the Government for the damages to the Government caused by negligent performance. Though not a mandatory requirement, this is to recommend that the Design-Build Contractor investigate and obtain appropriate insurance coverage for such liability protection.

(End of Clause)

4.1.9 TRAINING

4.1.9.1 This is suggested wording for a training requirement. This requirement can alternately be included elsewhere in the contract, for example, in Section 01012, "DESIGN AFTER AWARD". It is highly recommended that training be video taped for use by future maintenance personnel.

SCR___ TRAINING – FEB 2000

The Contractor shall provide operational and maintenance training for all systems furnished under this contract for the operating and maintenance personnel. The system manufacturer shall conduct the training, where feasible. All operation and maintenance manuals shall be submitted and approved prior to conducting the training and shall be used during training. The Contractor shall video tape the training session on VHS tapes and provide the tapes to the Government.

(End of Clause)

4.1.10 DESIGN CONFERENCES.

4.1.10.1 This information can be included in the RFP as an SCR or it can be addressed in Section 01012, "Design After Award."

DESIGN CONFERENCES – AUG 1997

(a) Pre-Work: As part of the Pre-Work Conference conducted after contract award, key representatives of the Government and the Contractor will review the design submission and review procedures specified herein, discuss the preliminary design schedule and provisions for phase completion of the D-B documents with construction activities (fast tracking), as appropriate, meet with Corps of Engineers Design Review personnel and key Using Agency points of contact and any other appropriate pre-design discussion items.

(b) Design Charette: After award of the contract, the Contractor shall visit the site and conduct extensive interviews, and problem solving discussions with the individual users, base personnel, Corps of Engineers personnel to acquire all necessary site information, review user options, and discuss user needs. The Contractor shall document all discussions. The design shall be finalized as direct result of these meetings.

(c) Design Review Conferences: Review conferences will be held on base for each design submittal. The Contractor will bring the personnel that developed the design submittal to the review conference. The conferences will take place the week after the review is complete.

(End of Clause)

4.1.11 VALUE ENGINEERING AFTER AWARD

4.1.11.1 This SCR is intended to clarify what the Government will and won't consider after award under Contract Clause, 52.248-3, "VALUE ENGINEERING – CONSTRUCTION."

SCR____ VALUE ENGINEERING AFTER AWARD – JUNE 1999

(a) In reference to Contract Clause 52.248-3, "Value Engineering – Construction", the Government may refuse to entertain a "Value Engineering Change Proposal" (VECP) for those "performance oriented" aspects of the Solicitation documents which were addressed in the Contractor's accepted contract proposal and which were evaluated in competition with other offerors for award of this contract.

(b) The Government may consider a VECP for those "prescriptive" aspects of the Solicitation documents, not addressed in the Contractor's accepted contract proposal or addressed but evaluated only for minimum conformance with the Solicitation requirements.

(c) For purposes of this clause, the term "performance oriented" refers to those aspects of the design criteria or other contract requirements which allow the Offeror or Contractor certain latitude, choice of and flexibility to propose in its accepted contract offer a choice of design, technical approach, design solution, construction approach or other approach to fulfill the contract requirements. Such requirements generally tend to be expressed in terms of functions to be performed, performance required or essential physical characteristics, without dictating a specific process or specific design solution for achieving the desired result.

(d) In contrast, for purposes of this clause, the term "prescriptive" refers to those aspects of the design criteria or other Solicitation requirements wherein the Government expressed the design solution or other requirements in terms of specific materials, approaches, systems and/or processes to be used. Prescriptive aspects typically allow the Offerors little or no freedom in the choice of
design approach, materials, fabrication techniques, methods of installation or other approach to fulfill the contract requirements.

(End of Clause)

4.1.12 "PARTNERING" (Optional SCR).

4.1.12.1 Encouraging the Contractor to participate in a partnering process is highly recommended in design-build construction contracts. Why? Because D-B involves non-traditional roles and responsibilities.

4.1.12.2 Design or construction issues affect each other in time and cost and the integrated design and construction schedule is very sensitive to delays – especially when fast tracking is involved. The Government must be more responsive to the information, review, and decision needs of the D-B Contractor.

4.1.12.3 The D-B Contractor should be responsive to the user's functional needs, often expressed in general terms of "design intent" in the RFP. The D-B Contractor may probably be very flexible with design details, as long as they can be accommodated within the cost and time budgets. Therefore, it is essential that channels of communications and mutual understanding of the other party's needs be facilitated. Partnering can be very effective toward achieving those goals.

4.1.12.4 Depending upon the size of the job, partnering can be formal or informal. Larger projects can allow for the costs associated with a formal process. Note that there are various formats in use for Partnering, with various cost sharing schemes):

SCR___. PARTNERING – FEB 2000

In order to most effectively accomplish this contract, the Government proposes to form a partnership with the Contractor to develop a cohesive building team. It is anticipated that this partnership would involve the **<NAME THE USING ORGANIZATIONS AND OTHER CRITICAL PARTIES HERE>,** the Contractor, primary subcontractors and designers and the Corps of Engineers. This partnership would strive to develop a cooperative management team drawing on the strengths of each team member in an effort to achieve a quality project within budget and on schedule. This partnership would be bilateral in membership and participation will be totally voluntary. Any cost associated with effectuating this partnership, excluding travel and lodging cost of Government personnel, will be borne by **<<SELECT AN**

OPTION TO SPECIFY: the Contractor/ each party/ the Government >>. The partnering meetings shall be held in .....

(End of Clause)

4.1.13 SPECIAL NOTE CONCERNING "SUBMITTAL OF WORK TO BE PERFORMED BY THE CONTRACTOR" (Not usually used in RFP's)

4.1.13.1 Some Districts routinely include wording similar to the following SCR in IFB's, as an aid to enforcing the percent of self-performed work required by Contract Clause 52.236-1, PERFORMANCE OF WORK BY THE CONTRACTOR. Unfortunately, they don't edit the SCR out of their standard SCR's for construction RFP's. ***DO NOT USE THIS SCR****, if Section 00110 PROPOSAL SUBMISSION REQUIREMENTS requires the offerors to identify the work which will be self performed with their proposal submission. Doing so causes confusion and duplication of efforts. The accepted proposal is part of the contract and must be enforced by the Government.*

SCR___ SUBMITTAL OF WORK TO BE PERFORMED BY THE CONTRACTOR (See above note!)

The Contractor shall furnish the Contracting Officer within 10 days after the award the items of work he will perform with his own forces and the estimated cost of those items. The percentage of work
that must be performed by the Contractor is stated in Contract Clause 52.236-1, "PERFORMANCE OF WORK BY THE CONTRACTOR"

(End of Clause)

PART 5. CONTRACT CLAUSES FOR DESIGN-BUILD CONSTRUCTION CONTRACTS:

5.1 The applicable contract clauses (Section 00700) for a D-B RFP are generally the same as for a design/bid/build construction RFP solicitation. There are some special considerations to keep in mind for a D-B RFP. Clauses that allow the Government to tailor wording to fit the situation are discussed herein. We have also included some discussion on some standard clauses.

TABLE III
Certain Clauses and Associated DFARS Clauses Included in a D/B Contract:

1. Requirements for Registration of Designers
2a. Performance of Work by the Contractor
2b. Limitations on Subcontracting
3. Commencement, Prosecution, and Completion of the Work
4. Governments Rights (Unlimited)
5. Drawings and Other Data to Become Property of the Government
6. Rights in Shop Drawings
7. Nondomestic Construction Materials

5.1.1. REQUIREMENTS FOR REGISTRATION OF DESIGNERS

5.1.1.1 It is extremely important to include this standard A-E contract clause in design-build construction contracts. Section 01012, "Design After Award", should specify requirements for the D-B contractor to designate "designers of record" for each design discipline. Section 01330, "Submittals", must specify the role of the DOR(s) to review and approve all submittals for extensions to design and other submittals, requiring coordination with the design. Section 01010, "Proposal Submission Requirements", requires offerors to identify and submit qualifications for the DOR(s). The below Contract Clause establishes minimum standards for registration.

52.236-0025 REQUIREMENTS FOR REGISTRATION OF DESIGNERS (Apr 1984)

The design of architectural, structural, mechanical, electrical, civil, or other engineering features of the work shall be accomplished or reviewed and approved by architects or engineers registered to practice in the particular professional field involved in a State or possession of the United States, in Puerto Rico, or in the District of Colombia.

(End of Clause)

5.1.2 PERFORMANCE OF WORK BY THE CONTRACTOR.

5.1.2.1 The following clause is mandatory for construction RFPs, not set-aside for small business or 8(a). The purpose of the clause is to prevent "brokering" of the work (that is where the winning contractor subs out the work to another firm or firms) and to require personal participation and management of the work by the prime contractor.

52.236-1 PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least _____ (**) percent of the total amount of work to be performed under the contract, not including design work. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

(End of Clause)

***** NOTE:*** *The FAR allows us to edit the required percentage of required self-performed work. Analyze each project on its own merits. Success in design-build construction requires a firm with strong management skills in design and construction. We recommend specifying a figure within the range of 12-15% of the construction amount, rather than the commonly used figure of "20%" for standard construction contracts. We normally exclude the design fee from the total amount of work. See FAR 36.501 for prescription for use. See also the discussion following this clause for suggested wording to include in Section 00110, "PROPOSAL SUBMISSION REQUIREMENTS", explaining to the offerors what is and what isn't defined as "self performed work." We have also included a standard form for offerors to calculate the amount of work proposed to be self performed and to submit for proposal evaluation.*

5.1.2.1.1 SECTION 0110, "PROPOSAL SUBMISSION REQUIREMENTS", SELF-PERFORMED WORK

5.1.2.1.2 Below is suggested wording, explaining the requirements of the Contract Clause "Self-Performance of Work." Include this information in Section 01010 "PROPOSAL SUBMISSION REQUIREMENTS. Note that contracts for 8(a) or SDB Set-Aside use a different clause and distinctly different method of calculation of self-performed work.

"XX. Self-Performed Work: Identify what construction parts of the project will be "self-performed" by in-house forces and the related cost for each part, as defined below. If sufficient information is available at the time your offer is prepared, state (within this Organization factor narrative) the percentage of work you will self-perform. If sufficient information is not available during preparation of this narrative, state that the information is

in the Pro-Forma requirements (see the following paragraph). The prime contractor must perform 15 percent of the contract work with its own organization in accordance with Section 00800, “PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984).”

XX.1 Computation Sheet. Provide and illustrate the calculation for “percent of self-performed work”, in accordance with the definitions below. Use the form attached hereinafter.

XX.2 The following are definitions concerning self-performance of work by the Prime Contractor, in accordance with Section 00800, “PERFORMANCE OF WORK BY THE CONTRACTOR.”

XX.2.1 "Self-performance of work" generally includes mobilization and utilization of owned or rented plant and equipment to be operated by the prime contractor's own employees; only those materials which will be both purchased and installed by the prime's own forces; labor associated with those aforementioned materials or equipment; only those supplies to directly support work performed by the contractor's own employees; and the contractor's own job overhead costs.

XX.2.2 The following is NOT self-performed work for purposes of the clause: Prime contractor markups for profit, general and administrative overhead, bonds, or other indirect costs on self-performed or subcontracted work; "Owner-operated equipment", rental of plant or equipment for operation by subcontractors; purchase of materials for installation by subcontractors.

XX.2.3 "On the site" includes the construction site(s) as well as off-site fabrication plant or other facilities necessary to manufacture assemblies or provide materials to be incorporated into the construction project.

XX.2.4 "Total amount of work to be performed under the contract" is comprised of all direct (variable, fixed, one-time and semi-variable) costs to the contractor, including jobsite overhead costs, to construct the project. It generally includes all self-performed work, as defined above, and cost of all supplies, materials and subcontracts. It does not include design costs, home or branch office overhead costs or prime contractor markups for bond, profit, etc.”

See the next page for a suggested standard form to include in section 00110, “Proposal Submission Requirements.” Use this information to evaluate proposed self-performed work.

FORMAT FOR CALCULATION OF SELF-PERFORMED WORK
DESIGN/BUILD CONTRACTS
For all Contracts, except 8(a)

Use a format similar to the following to identify and calculate cost of the work to be self-performed. Refer to the definitions pertaining to "Self-performance of work", "On the site" and "Total amount of work to be performed under the contract". Include this information in the envelope for Volume II (Pro Forma Requirements), if undetermined until the specified deadline for proposal submission. Otherwise include it in Volume I (Performance Capability) in TAB A:

A. Clearly describe the work to be self-performed:

_____

_____

_____

B. Show Calculation of Self-Performed Work:

B.1 Total Bid Price: $ _____

B.2 Subtract Design Cost: ($ _____)

B.3 Subtract G&A, home office overhead, prime contractor's markups for profit, bond, state use tax, etc. ($ _____)

B.4 Remainder is "Total amount of work to be performed under the Contract" = $ _____

B.5 "Work to be self-performed": = $ _____
(Includes mobilization and utilization of owned or rented plant and equipment to be operated by the prime contractor's own employees; only those materials which will be both purchased and installed by the prime's own forces; labor associated with those aforementioned materials or equipment; only those supplies to directly support work performed by the contractor's own employees; and the contractor's own job overhead costs.)

B.6 % Self-performed Work = Line B.5/ Line B.4 X 100% = _____ %

5.1.2.2 LIMITATIONS ON SUBCONTRACTING.

5.1.2.2.1 Note that 8(a) or SDB set-aside contracts do not use the standard FAR Clause "PERFORMANCE OF WORK BY THE CONTRACTOR". Instead, use a Statutorily prescribed clause, entitled "LIMITATIONS ON SUBCONTRACTING." The purpose of the clause is to require personal supervision and control of the contract work by the SDB firm and to require substantial personal work performance (to avoid "brokering the work to non-minority firms). The definitions of self-performed work are substantially different than for non- 8(a) contracts. The clause is shown below, along with information and a form for use in Section 00110 "PROPOSAL SUBMISSION REQUIREMENTS" of the RFP for a competitive 8(a) or competitive SDB set-aside contract.

52.219-14 LIMITATIONS ON SUBCONTRACTING (Jan 1991)

(a) This clause does not apply to the unrestricted portion of a partial set-aside.

(b) By submission of an offer and execution of a contract, the Offeror/Contractor agrees that in performance of the contract in the case of a contract for:

(1) Services (except construction). At least 50 percent of the cost of contract performance incurred for personnel shall be expended for employees of the concern.

(2) Supplies (other than procurement from a regular dealer in such supplies). The concern shall perform work for at least 50 percent of the cost of manufacturing the supplies, not including the cost of materials.

(3) General construction **. The concern will perform at least 15 percent of the cost of the contract, not including the cost of materials, with its own employees.

(4) Construction by special trade contractors **. The concern will perform at least 25 percent of the cost of the contract, not including the cost of materials, with its own employees.

(End of Clause)

**Specify, in Section 0110, "PROPOSAL SUBMISSION REQUIREMENTS", whether the contract is for general construction or a single trade. This will clarify which sub-paragraph, (b)(3) or (b)(4), applies to the specific project).

5.1.2.2.2 SECTION 0110, "PROPOSAL SUBMISSION REQUIREMENTS", SELF-PERFORMED WORK FOR Competitive 8(a) or SDB Set-aside.

5.1.2.2.2.1 The following is suggested wording for inclusion in Section 00110 of the RFP:

"XX. Identify what parts of the project will be "self-performed" by in-house forces and the related cost for each part, as defined below. Provide and illustrate the calculation for "percent of self-performed work", in accordance with the definitions below.

XX.1 Definitions regarding self-performance of work by the Prime Contractor, in accordance with Contract Clause: "Limitations on Subcontracting" (FAR 52.219-14):

XX1.1 The work in this contract is "general construction" for purposes of Contract Clause "Limitations on Subcontracting."

XX.1.2 "Self-performed work" generally includes costs for: mobilization and utilization of owned or rented plant and equipment to be operated by the contractor's own employees and labor associated with the aforementioned equipment; contractor's own labor to fabricate or to install materials into the finished construction; performance by the contractor's own employees of design work, land surveys and other engineering or technical specialist services required by the contract; supplies to directly support the aforementioned work to be accomplished by the contractor's own employees; and the contractor's own job overhead costs. Contractor markups for profit, general and administrative overhead, bonds, or other indirect costs on "self-performed" or subcontracted work are not "self-performed work" and are to be excluded from "total cost of the contract" for calculation purposes. Rental of plant or equipment for operation by subcontractors is not "self-performed work" but shall be included in the "total cost of the contract" for calculation purposes . Cost of materials to be incorporated into the work and supplies to support other than construction by the contractor's own employees are excluded from the above definition. Do not include these costs in the calculation.

XX.1.3 "Total cost of the contract" means the total direct (variable, fixed, one-time and semi-variable) costs to the contractor, including jobsite overhead costs but excluding the cost of any materials to be incorporated into the work, to construct the project. It generally includes the cost of all self-performed work, as defined above, and all supplies and subcontract costs. The cost of subcontractor furnished materials will be excluded only to the extent that they can be segregated and identified in the subcontractors' proposals.

XX.1.4 "Percent of self-performed work" is calculated by dividing the above defined cost of "self-performed work" by the "total cost of the contract" and multiplying the result by 100%."

5.1.3 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK

5.1.3.1 Adapt this clause and Specification Section 01000, Construction Schedule, as necessary to meet your requirements. You may state separate completion times for the design and the construction; however, this is discouraged. The recommendation is to state one completion time inclusive of both design and construction. If you allow the offerors to propose the contract duration period, add wording to cover acceptance of the selected offeror's proposed performance period – not to exceed a prescribed maximum period.

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (Apr 1984)

(a) The Contractor shall be required to (1) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (2) prosecute the work diligently, and (3) design and construct the entire work.....<**--If the performance period is to be proposed by the offerors, use wording to this effect: "....ready for use not later than the proposed performance period after receipt of the contract notice to proceed. The maximum proposed performance period cannot exceed _____calendar days after receipt of the notice to proceed."**> The times stated for completion shall include final cleanup of the premises.

(b) Provisions stipulated for conducting test on heating and air conditioning systems and planting and maintenance of grass are excluded from the completion time stated above.

(End of Clause)

5.1.4 GOVERNMENT RIGHTS (UNLIMITED).

5.1.4.1 Use this DFARS clause in all design-build contracts, except those using the DFARS clause: DRAWINGS AND OTHER DATA TO BECOME PROPERTY OF THE GOVERNMENT**.** *The clause grants the Government non-exclusive rights to use the design on other projects.*

52.227-7022 GOVERNMENT RIGHTS (UNLIMITED)(DFARS, Mar 1979)

The Government shall have unlimited rights in all drawings, designs, specifications, notes and all other works developed in the performance of this contract, including the right to use same on any other Government design or construction without additional compensation to the Contractor. The Contractor hereby grants to the Government a paid-up license throughout the world to all such works to which he may assert or establish any claim under design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish the original or copies of all such works on the request of the Contracting

Officer.

(End of Clause)

5.1.5 DRAWINGS AND OTHER DATA TO BECOME PROPERTY OF THE GOVERNMENT.

5.1.5.1 When the purpose of the Design-Build contract is to obtain a unique architectural design and construction of a building or monument, which for artistic, aesthetic or other special reasons the Government does not want duplicated, use the following DFARS clause to obtain exclusive control of the data pertaining to the design (ref: DFARS 227.7107(b)). In that case, do not use the DFARS clause: 52.227-7022 GOVERNMENT RIGHTS (UNLIMITED)

52.227-023 DRAWINGS AND OTHER DATA TO BECOME PROPERTY OF THE GOVERNMENT (DFARS, Mar 1979)

All designs, drawings, specifications, notes, and other works developed in the performance of this contract shall become the sole property of the Government and may be used on any other design without additional compensation to the Contractor. The Government shall be considered the "person for whom the work was prepared" for the purpose of authorship in a copyrightable work under 17 U.S.C. 201(b). With respect thereto, the Contractor agrees not to assert or authorize others to assert any rights or to establish any claim under the design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish all retained works on the request of the Contracting Officer. Unless otherwise provided in the contract, the Contractor shall have the right to retain copies of all works beyond such period.

(End of Clause)

5.1.6 NONDOMESTIC CONSTRUCTION MATERIALS

5.1.6.1 List all known allowable exceptions to the Buy America Act – Construction in the following clause.

NONDOMESTIC CONSTRUCTION MATERIALS (Oct 1966) DFARS 52.225-7003

(a) The requirements of the clause of this contract entitled "Buy American Act" do not apply to the items set forth below:

(LIST)

(End of Clause)

PART 6 BASIS OF AWARD

6.1 Below is sample wording, explaining the "Basis of Award" for a design-build contract. This sample describes the Best Value Trade-Off Approach – in this particular case, price and quality are considered equal in importance. Include this information in the Design-Build RFP in Section 00120, "PROPOSAL EVALUATION CRITERIA."

6.2 Setting cost and price equal in importance is probably the most used approach for Design Build projects. Under this approach, the Government awards the contract to the Offeror submitting the best proposal within the cost ceiling identified in the "Cost Limitation Clause" in Section 00100, "Instructions to Offerors." As long as there is real or perceived competition, the comments concerning the importance of "price" in the Basis of Award discourage the offerors from gold plating the project (wasting money on features offering little added value) or inflating the price, when a good project can be built under the cost ceiling.

BASIS OF AWARD (include within Section 00120 "Proposal Evaluation Criteria")

XX.1. The Government will award a firm fixed-price contract to that responsible Offeror whose proposal, conforming to the solicitation, is fair and reasonable, and has been determined to be most advantageous to the Government, quality (comprised of technical approach and performance capability factors), price and other factors considered. The rated/scored technical evaluation criteria and price are considered equal. As technical scores and relative advantages and disadvantages become less distinct, differences in price between proposals are of increased importance in determining the most advantageous proposal. Conversely, as differences in price become less distinct, differences in scoring and relative advantages and disadvantages between proposals are of increased importance to the determination.

XX.2. The Government reserves the right to accept other than the lowest priced offer. The right is also reserved to reject any and all offers. The basis of award will be a conforming offer, the price or cost of which may or may not be the lowest. If other than the lowest offer, it must be sufficiently more advantageous than the lowest offer to justify the payment of additional amounts.

XX.3. Offerors are reminded to include their best technical and price terms in their initial offer and not to automatically assume that they will have an opportunity to participate in discussions or be asked to submit a revised offer. The Government may make award of a conforming proposal without discussions, if deemed to be within the best interests of the Government."

PART 7. GUIDE SPECIFICATIONS MODIFIED FOR DESIGN-BUILD CONSTRUCTION CONTRACTS:

7.1 Several Guide Specifications, covering contract procedures and execution issues must be modified for design-build construction contracts to reflect the integrated design and construction aspects, as well as the non-traditional roles and responsibilities of the parties. Some of these modified Specifications have been included herein. In addition, we have included a sample Section 01012 "DESIGN AFTER AWARD".

TABLE IV

1. *Submittals (Section 01330)*
2. *Contractor Quality Control (Section 01451)*
3. *Project Schedule (Section 1320)*
4. *Design After Award (Section 01012)*

7.1.1 SUBMITTALS (SECTION 01330)

7.1.1.1 Design submittals are covered in Division 01 General Requirements, Section 01012 "DESIGN AFTER AWARD". Construction submittal requirements are addressed in, Section 01330, "SUBMITTAL REQUIREMENTS". In design-build contracts, design and construction submittals are generally reviewed for conformance to the contract requirements. They are NOT routinely "reviewed for approval". The only time review for approval is necessary is for totally prescriptive specialty designs for which the Government desires to assume design responsibility. The requirement for approval should be determined during the development of the D-B RFP. The design-build project team needs to be explicit as to what needs Government approval and why the approval is necessary. The team also needs to be explicit as to what needs Government review and that the review is to ensure conformance to the contract requirements. The primary principle to remember is that if the Government chooses to approve the submittal, they may be taking some responsibility from the Contractor on design issues. One of the main advantages of D-B is the single point of responsibility for both design and construction. The Government shifts the risk of design adequacy to the D-B by avoiding assumption of the traditional role of "approval" of design and construction products to the maximum extent possible.

7.1.1.2 Section 01330 makes the D-B Contractor's Designer(s) of Record responsible for assuring the adequacy and integration of the design, including written approval for all extensions of design, critical materials, any deviations from the solicitation, the accepted proposal, or the completed design, equipment whose compatibility with the entire system must be checked. The Government must concur with deviations to the completed design and must approve deviations to the accepted proposal and RFP; the latter are considered formal "changes", unless inconsequential in scope and cost

7.1.1.3. Section 01330, adapted for Design-Build construction contracts, follows.

SECTION 01330

SUBMITTAL PROCEDURES
(DESIGN/BUILD)
REV. FEB 2000

PART 1 - GENERAL

1.1 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.1.1 Design Submittals

Administrative Contracting Officer review is required for all design. The Government will review all 50% and 95% design submittals for conformance with the technical requirements of the solicitation. Section 01012, Design After Award, covers the design submittal and review process in detail.

1.1.2 Construction Submittals

1.1.2.1 Submittal Definitions

The submittals described below are those required and further described in other sections of the specifications. Submittals required by the CONTRACT CLAUSES and other non-technical parts of the contract are not included in this section.

SD-01 Data

Work to be Performed by Contractor

Submittal Registers

Submittals which provide calculations, descriptions, or documentation regarding the work.

SD-04 Drawings

Submittals which graphically show relationship of various components of the work, schematic diagrams of systems, details of fabrication, layouts of particular elements, connections, and other relational aspects of the work.

As-Built Drawings

Equipment Layout Drawings

SD-06 Instructions

Preprinted material describing installation of a product, system or material, including special notices and material safety data sheets, if any, concerning impedances, hazards, and safety precautions.

SD-07 Schedules

Progress Schedules

Schedules for Construction Contracts

Contractor Prepared Network Analysis

Tabular lists showing location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the work.

SD-08 Statements

Accident Prevention Plan

Hazard Analysis Plan

Environmental Protection Plan

Submittal Procedures

A document, required of the Contractor, or through the Contractor, from a supplier, installer, manufacturer, or other lower tier Contractor, the purpose of which is to confirm the quality or orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel, qualifications, or other verifications of quality.

SD-09 Reports

Reports of inspections or tests, including analysis and interpretation of test results. Each report shall be properly identified. Test methods used shall be identified and test results shall be recorded.

SD-13 Certificates

Statements signed by responsible official of a manufacturer of a product, system or material, attesting that the product, system or material meets specified requirements.

SD-14 Samples

Samples including both fabricated and unfabricated physical examples of materials,

products, and units of work as complete units or as portions of units of work.

SD-18 Records

Documentation to record compliance with technical or administrative requirements.

SD-19 Operation and Maintenance Manuals

Data which forms a part of an operation and maintenance manual.

1.1.2.2 Designer of Record Approval.

Designer of Record approval is required for extensions of design, critical materials, any deviations from the solicitation, the accepted proposal, or the completed design, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer's Representative. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", they are considered to be "shop drawings". The Contractor shall provide the Government the number of copies designated hereinafter of all Designer of Record approved submittals. The Government may review any or all Designer of Record approved submittals for conformance to the Solicitation and Accepted Proposal. The Government will review all submittals designated as deviating from the Solicitation or Accepted Proposal, as described below.

1.1.2.3 Government Approved Construction Submittals.

Administrative Contracting Officer approval is required for any deviations from the Solicitation or Accepted Proposal and other items as designated by the Contracting Officer' Representative. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", they are considered to be "shop drawings".

1.1.2.4 Government Reviewed Extension of Design.

Government review is required for extension of design construction submittals, used to define contract conformity, and for deviation from the completed design. Review will be only for conformance with the contract requirements. Included are only those construction submittals for which the Designer of Record design documents do not include enough detail to ascertain contract compliance. Government review is not required for extensions of design such as structural steel or reinforcement shop drawings.

1.1.2.5 Information Only.

All submittals not requiring Designer of Record or Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the

Contract Clause referred to above.

1.2 GOVERNMENT REVIEWED OR "APPROVED" SUBMITTALS

The Contracting Officer's Representative conformance review or approval of submittals shall not be construed as a complete check, but will indicate only that the design, general method of construction, materials, detailing and other information appear to meet the Solicitation and Accepted Proposal. Government Review or approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor, under the Design and CQC requirements of this contract, is responsible for design, dimensions, all design extensions, such as the design of adequate connections and details, etc., and the satisfactory construction of all work. After submittals have been reviewed for conformance or approved, as applicable, by the Contracting Officer' Representative, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.3 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer's Representative, obtain the Designer of Record's approval, when applicable, and promptly furnish a corrected submittal in the form an number of copies specified for the initial submittal. Any "information only" submittal found to contain errors or unapproved deviations from the Solicitation or Accepted Proposal shall be resubmitted as one requiring "approval" action, requiring both Design of Record and Government approval. If the Contractor considers any correction indicated by the Government on the submittals to constitute a change to the contract, it shall promptly provide a notice in accordance with the Contract Clause "Changes" to the Contracting Officer's Representative.

1.4 WITHHOLDING OF PAYMENT

No payment for materials incorporated in the work will be made if all required Design of Record or required Government approvals have not been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

PART 2 - PRODUCTS

2.1 DESIGN SUBMITTALS

The Contractor shall design submittals in accordance with Section 01012 entitled "DESIGN AFTER AWARD".

2.2 CONSTRUCTION SUBMITTALS

2.2.1 General

The Contractor shall make submittals as required by the specifications. The Contracting Officer's Representative may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, the Contractor's Quality Control (CQC) representative, and the Designer of Record, as applicable, above shall check, approve and stamp, sign, and date each item, indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

2.2.2 Submittal Register (ENG Form 4288)

The Contractor's Designer(s) of Record shall develop a complete list of submittals during design. The Designer of Record shall identify required submittals in the specifications. Use the list to prepare ENG Form 4288 Submittal Register or a computerized equivalent. The list may not be all inclusive and additional submittals may be required by other parts of the contract. The Contractor is required to complete ENG Form 4288 (including columns "a" through "r") and submit to the Contracting Officer for approval within 30 calendar days after Notice to Proceed. The approved submittal register will serve as a scheduling document for submittals and will be used to control submittal actions throughout the contract period. The submit dates and need dates used in the submittal register shall be coordinated with dates in the Contractor prepared progress schedule. Updates to the submittal register showing the Contractor action codes and actual dates with Government action codes and actual dates shall be submitted monthly or until all submittals have been satisfactorily completed. When the progress schedule is revised, the submittal register shall also be revised and both submitted for approval.

2.2.3 Scheduling

Schedule those submittals covering component items forming a system or items that are interrelated to be coordinated and submitted concurrently. Also, schedule Certifications to be submitted with the pertinent drawings. Allow adequate time (a minimum of ___ calendar days exclusive of mailing time) and indicate on the register for Government review or approval. No delay damages or time extensions will be allowed for time lost in late

submittals.

2.2.4 Transmittal Form (ENG Form 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be for transmitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. The Government will furnish blank forms to the Contractor. Properly complete this form by filling out all the heading blank spaces and identifying each item submitted. Exercise special care to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

2.2.5 Submittal Procedure

Make submittals as follows:

2.2.5.1 Procedures

The Government will further discuss detailed submittal procedures with the Contractor at the pre-construction conference.

2.2.5.2 Deviations

On submittals for which the Contractor requests proposed deviations, check the column "variation" of ENG Form 4025. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. As stated above, the Contractor's Designer of Record's approval is required for any proposed deviation. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

2.2.6 Control of Submittals

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register" so the material needed date is not threatened.

2.2.7 Government Conformance Review and Approved Submittals

Upon completion of review of submittals requiring Government approval, the Government will identify the submittals as having received approval by so stamping and dating. The Contracting Officer's Representative will retain XXX copies of the submittal and return YYY copies of the submittal to the Contractor. If the Government performs a conformance review of other Designer of Record approved submittals, the submittals will be so identified and returned, as described above.

2.2.8 Information Only Submittals

Normally the Government will not return submittals for information only. No action of the Contracting Officer's Representative is required on information only submittals. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer's Representative from requiring removal and replacement of nonconforming material incorporated in the work; and does not relive the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe. The Government will retain ZZZ copies of information only submittals.

2.2.9 Stamps

Stamps used by the Contractor's Designer of Record and the Contractor's designed Quality Control person on the submittal data to certify that the submittal meets contract requirements shall be similar to the following (use two stamps for submittals reviewed by both):

CONTRACTOR (Firm Name)
____ Approved.
____ Approved with corrections as noted on submittal data and/or attached sheet(s).
SIGNATURE: _____
TITLE: (DESIGNER OF RECORD)
DATE: _____

SECTION 01451

CONTRACTOR QUALITY CONTROL
DESIGN-BUILD CONSTRUCTION
REV. FEB 2000

PART 1 - GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(1994a) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1995b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

No separate payment will be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all design and construction operations, both onsite and offsite, and shall be keyed to the proposed design and construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.

3.2 QUALITY CONTROL PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 60 days of operation. Design and Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.2 Design Quality Control (DQC) Plan

The Contractor's DQC Plan shall provide and maintain an effective quality control program which will assure that all services required by this design-build contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, all documents shall be technically reviewed by competent, independent reviewers identified in the DQC Plan. The same element that produced the product shall not perform the independent technical review (ITR). In addition, the DQC Plan shall incorporate the Lessons Learned Databases provided by the Government. The Contractor shall correct errors and deficiencies in the design documents prior to submitting them to the Government.

The Contractor shall include the design schedule in the master project schedule, showing the sequence of events involved in carrying out the project tasks within the specific contract period. This should be at a detailed level of scheduling sufficient to identify all major tasks including those that control the flow of work. The schedule shall include review and correction periods associated with each item. This should be a forward planning as well as a project monitoring tool. The schedule reflects calendar days and not dates for each activity. If the schedule is changed, the Contractor shall submit a revised schedule reflecting the change within seven calendar days. The Contractor shall include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. These completed checklists shall be submitted at each design phase as part of the project documentation. Example checklists can be found in ER 1110-1-12.

The DQC Plan shall be implemented by an assigned person with the Contractor's organization who has the responsibility of being present during the times work is in progress, and shall be cognizant of and assure that all documents on the project have been coordinated. This individual shall be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. The

Contractor shall notify the Contracting Officer, in writing, of the name of the individual and the name of an alternate person assigned to the position.

The Contracting Officer will notify the Contractor, in writing, of the acceptance of the DQC Plan. After acceptance, any changes proposed by the Contractor are subject to the acceptance of the Contracting Officer.

3.2.3 Content of the CQC Plan

The CQC plan shall include, as a minimum, the following to cover all design and construction operations, both onsite and offsite, including work by subcontractors, designers of record, consultants, architect/engineer's (A/E's), fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project manager or someone higher in the Contractor's organization. Project manager in this context shall mean the individual with responsibility for the overall management of the project including quality and production.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters will also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, designers of record, consultants, A/E's, off-site fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 - SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (The Contracting Officer must approve Laboratory facilities.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats. The Contractor shall utilize a Government-furnished software program titled "RMS" (Resident Management System). See paragraph, IMPLEMENTATION OF GOVERNMENT RESIDENT MANAGEMENT SYSTEM FOR CONTRACTOR QUALITY CONTROL OF CONTRACT, of this section for additional details.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

j. A list of tests to be performed shall be furnished as a part of the CQC Plan. The list shall give the test name, frequency, specification paragraph containing the test requirement, the personnel and laboratory responsible for each type of test, and an estimate of the number of tests required.

k. RMS will assist in tracking and reporting for the above requirements. Sample forms generated from the software package shall be used as part of the CQC Plan.

3.2.4 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of design and/or construction. Acceptance is conditional and will be predicated on satisfactory performance during the design and construction phases. The Government reserves the right to require the Contractor to make changes in his CQC plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.5 Notification of Changes

After acceptance of the CQC plan, the Contractor shall notify the Contracting Officer in writing a minimum of seven calendar days prior to any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Pre-design Conference, before start of design and/or construction, and prior to acceptance by the Government of the Quality Control Plan, the Contractor shall meet with

the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 10 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 General

The requirements for the CQC organization are a CQC System Manager, Designer of Record and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization, which shall be at the site at all times during progress of the work and which shall have complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the on site work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 5 years construction experience on construction similar to this contract. This CQC System Manager shall be on the site at all times during design and construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager will be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate will be the same as for the designated CQC Manager.

3.4.3 CQC Specialist (NOTE TO SPECIFIER: OPTIONAL ADDITIONAL PERSONNEL – SELECT AS NEEDED- BUT KEEP TO MINIMUM NECESSARY)

In addition to CQC personnel previously specified, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager in the areas listed below. The electrical, mechanical, and submittals clerk specialist shall be directly employed by the prime Contractor. The CQC specialist shall be responsible to the CQC System Manager; be physically present at the construction site during work on their areas

of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be

allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan.

EXPERIENCE MATRIX- (EXAMPLES- EDIT AS NECESSARY FOR JOB)

Area	Qualifications
a. Mechanical	Graduate Mechanical Engineer with 2 years experience
b. Electrical	Graduate Electrical Engineer with 2 years experience

3.4.4 Additional Requirement

In addition to the above experience and education requirements, the CQC System Manager shall have completed the course entitled, "Construction Quality Management for Contractors". The Resident Engineer can arrange for this training.

3.4.5 Organizational Changes

The Contractor shall obtain Contracting Officer's acceptance before replacing any member of the CQC staff. Requests shall include the names, qualifications, duties, and responsibilities of each proposed replacement. Upon acceptance of any changes, the Contractor shall revise the CQC plan to accurately reflect the changes. The CQC plan shall be kept current at all times during the life of the contract.

3.5 SUBMITTALS

Submittals shall be made as specified in Section 01330 - SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

3.6 IMPLEMENTATION OF GOVERNMENT RESIDENT MANAGEMENT SYSTEM FOR CONTRACTOR QUALITY CONTROL OF CONTRACT

The Contractor shall utilize a Government-furnished software program entitled "RMS" (Resident Management System) to maintain critical information needed to manage the project. RMS produces up-to-date management and analysis reports as well as a majority of the forms required in this contract for submission to the Government. One such form is

the Daily CQC Reporting System form, which is required to be utilized by the Contractor. This form may be in addition to other Contractor desired reporting forms. However, all

other such reporting forms shall be consolidated into this one Government specified Daily CQC Report Form.

The Contractor will also be required to complete RMS Program Module elements which includes, but is not limited to, Prime Contractor staffing; letter codes; planned cumulative progress earnings; subcontractor information showing trade, name, address, point-of-contact, and insurance expiration dates; definable features of work; pay activity and activity information; required Quality Control tests tied to individual activities; planned User Schooling tied to specific specification paragraphs and contractor activities; Installed Property Listing, Transfer Property Listing and submittal information relating to specification section, description, activity number, review period and expected procurement period. The sum of all activity values shall equal the contract amount, and all Bid Items, Options and Additives shall be separately identified, in accordance with the "Bidding Schedule". Bid Items may include multiple Activities, but Activities may only be assigned to one such Bid Item. This Module shall be completed to the satisfaction of the Contracting Officer prior to any contract payment (except for Bonds, Insurance and/or Mobilization, as approved by the Contracting Officer) and shall be updated as required.

(1) During the course of the contract, the Contractor will receive various Quality Assurance comments from the Government that will reflect corrections needed to Contractor activities or reflect outstanding or future items needing the attention of the Contractor. The Contractor will acknowledge receipt of these comments by specific number reference on his Daily CQC Report, and will also reflect on his Daily CQC Report when these items are specifically completed or corrected to permit Government verification.

(2) The Contractor's schedule system shall include, as specific and separate activities, all Preparatory Phase Meetings (inspections); all O&M Manuals; and all Test Plans of Electrical and Mechanical Equipment or Systems that require validation testing or instructions to Government representatives.

The following minimum hardware and software requirements are needed by the Contractor to run RMS: A personal computer with Pentium II processor (or higher) and four megabytes (MB) or more of random access memory (RAM), and a 3-1/2 inch high density floppy drive. Also needed is a HP LaserJet Series III printer or later (or compatible), a color monitor, MS-DOS, version 5.0 or later, Word Perfect, version 5.1 or later, and Computer files = 81.

Once the Contract is awarded, the Contractor will be given a copy of the RMS program for implementation. A meeting between the Government and the Contractor will be arranged to inform the Contractor on the use of the software package which is similar to the one the Government will use to manage the project. File updates will be transferred to the Government by disk on a weekly basis, unless electronic transfers are agreed on.

3.7 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the design and construction, to include that of the designer of record, consultants, subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable features of work as follows:

3.7.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications.

b. A review of the contract drawings.

c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Government shall be notified at least 72 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.7.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work on site, or any time acceptable specified quality standards are not being met.

3.7.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon or conceal non-conforming work.

3.7.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

3.8 TESTS

3.8.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. If Approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility will be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract. The Contractor shall maintain a test log of all tests performed, by type, date, and specification section.

3.8.2 Testing Laboratories

3.8.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed

laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.8.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of $1,000.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.8.3 On Site Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.8.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Laboratory, f.o.b., at the following address:

For delivery by mail and for other deliveries:

Commander, U.S. Army Engineer Waterways Experiment Station
ATTN: CEWES-SC
3909 Halls Ferry Road
Vicksburg, Mississippi 39180-6199

Coordination for each specific test, exact delivery location, and dates will be made through the Area Office.

3.9 COMPLETION INSPECTION

3.9.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager shall conduct

an inspection of the work and develop a punch list of items which do not conform to the

approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.9.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or an particular increment thereof if the project is divided into increments by separate completion dates.

3.9.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9.4 Post Completion Feedback Meeting and Preparation of Written Minutes

At the completion of this project, the CQC Systems Manager will host a meeting to review the project and to discuss lessons learned during the construction of the project. This meeting should be scheduled for 4 hours on-site and should be attended by the Project Manager and representatives of the major subcontractors, including mechanical and electrical. The Contracting Officer will invite members of the design team to participate

in this meeting.

3.10 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals reviewed, with contract reference, by whom, and action taken.

g. Offsite surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 12 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be

signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10.1 Correspondence

The Contractor shall establish and implement a serialized numbering system for letters sent to the Government. The numbering system shall identify the contract number and shall progress sequentially starting with the number one (1) and continuing thereafter without break in numbering. All letters sent to the Government shall include a subject heading which identifies the Contract Clause Number, Special Clause Number, or Technical Provision Number, and the particular subject item addressed by the letter.

3.11 SAMPLE FORMS

Sample forms are enclosed at the end of this section as follows:

a. Minimum Daily Construction Quality Control Report and the required preparatory and initial inspection documentation.

b. All tests of piping systems or portions thereof shall be recorded on the "Piping System Test Report".

c. Roofing operations, including materials used, shall be reported on "CONTRACTOR'S INSPECTOR ROOFING CHECK LIST AND TEST REPORT".

d. When operation and maintenance instructions for equipment are given to Government representatives by the Contractor, his representative shall record on a form similar to that attached hereto, the applicable data, including the name, organization and signature of each person attending the instructions. All tests on engine-generator sets shall be recorded on "Appendix A" and "Appendix B" forms.

e. Paint service records documented on ENG Form 144, "Paint Service Record", a copy of which is attached hereto, shall be maintained by the Contractor for each pint formulation used on metal structures (maintenance or new work, other than minor trim items,), and for each paint formulation applied by the manufacturer on prefinished metal products. Paint service records shall be furnished to the Contracting Officer on a weekly basis.

3.12 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the worksite, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to

comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

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SECTION 01320 PROJECT SCHEDULE
DESIGN-BUILD CONSTRUCTION

1. GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Schedules

Initial Project Schedule; GA; CD/OD

Preliminary Project Schedule; GA; CD/OD

Periodic Schedule Updates; GA; CD/OD

[Three][_____]copies of the schedules showing codes, values, categories, numbers, items, etc., as required.

SD-08 Statements

Qualifications; FIO; CD/OD

Documentation showing qualifications of personnel preparing schedule reports.

SD-09 Reports

Narrative Report; FIO; CD/OD

Schedule Reports; FIO; CD/OD

[Three] [_____] copies of the reports showing numbers, descriptions, dates, float, starts, finishes, durations, sequences, etc., as required.

1.2. QUALIFICATIONS

The Contractor shall designate an authorized representative who shall be responsible for the preparation of all required project schedule reports. This person shall have previously created and reviewed computerized schedules. Qualifications of this individual shall be submitted to the Contracting Officer's Representative for review

with the Preliminary Project Schedule submission.

2. PRODUCTS (Not Applicable)

3. EXECUTION

3.1 GENERAL

Pursuant to the Contract Clause, SCHEDULE FOR CONSTRUCTION CONTRACTS a Project Schedule as described below shall be prepared. The Contractor shall be responsible for scheduling of all design, procurement and construction activities. Contractor management personnel shall actively participate in its development. Designers. subcontractors and suppliers working on the project should also contribute in developing and maintaining an accurate Project Schedule. The approved Project Schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis of all progress payments.

3.2 BASIS FOR PAYMENT

The schedule shall be the basis for measuring Contractor progress. Lack of an approved schedule or scheduling personnel shall result in an inability of the Contracting Officer's Representative to evaluate Contractor progress for the purposes of payment. Failure of the Contractor to provide all information, as specified below, shall result in the disapproval of the entire Project Schedule submission and the inability of the Contracting Officer's Representative to evaluate Contractor progress for payment purposes. In the case where Project Schedule revisions have been directed by the Contracting Officer's Representative and those revisions have not been included in the Project Schedule, then the Contracting Officer's Representative may hold retainage up to the maximum allowed by contract, each payment period, until revisions to the Project Schedule have been made.

3.3 PROJECT SCHEDULE

The computer software system utilized by the Contractor to produce the Project Schedule shall be capable of providing all requirements of this specification. Failure of the Contractor to meet the requirements of this specification shall result in the disapproval of the schedule. Manual methods used to produce any required information shall require approval by the Contracting Officer's Representative.

3.3.1 Use of the Critical Path Method

The Critical Path Method (CPM) of network calculation shall be used to generate the Project Schedule. The Contractor shall provide the Project Schedule in either the Precedence Diagram Method (PDM) or the Arrow Diagram Method (ADM).

3.3.2 Level of Detail Required

With the exception of the initial and preliminary schedule submission, the Project Schedule shall include an appropriate level of detail. Failure to develop or update the Project Schedule or provide data to the Contracting Officer's Representative at the appropriate level of detail, as specified by the Contracting Officer's Representative, shall result in the disapproval of the schedule. The Contracting Officer's Representative will use, but is not limited to, the following conditions to determine the appropriate level of detail to be used in the Project Schedule.

3.3.2.1 Activity Durations

Contractor submissions shall be required to follow the direction of the Contracting Officer's Representative regarding reasonable activity durations. Reasonable durations are those that allow the progress of activities to be accurately determined between payment periods. A rule of thumb, that the Contractor should use, is that less than 2 percent of all non-procurement activities' Original Durations shall be greater than 20 days.

3.3.2.2 Design and Permit Activities

The Contractor shall integrate design and permitting activities, including necessary conferences and follow-up actions and design package submission dates into the schedule.

3.3.2.3 Procurement Activities

Tasks related to the procurement of long lead materials or equipment shall be included as separate activities in the project schedule. Long lead materials and equipment are those materials that have a procurement cycle of over 90 days. Examples of procurement process activities include, but are not limited to: submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing.

3.3.2.4 Government Activities

Government and other agencies activities that could impact progress shall be shown. These activities include, but are not limited to: design reviews, submittal reviews, environmental permit approvals by State regulators, inspections, utility tie-in, Government Furnished Equipment (GFE) and notice to proceed for phasing requirements.

3.3.2.5 Workers Per Day

All activities shall have an estimate of the average number of workers per day that are expected to be used during the execution of the activity. If no workers are required for an activity, in the case of activities related to procurement, for example, then the activity shall be identified as using zero workers per day. The workers per day information for each activity shall be identified by the Workers Per Day Code.

3.3.2.6 Responsibility

All activities shall be identified in the project schedule by the party responsible to perform the work. Responsibility includes, but is not limited to, the subcontracting firm, contractor work force, or government agency performing a given task. Activities shall not belong to more than one responsible party. The responsible party for each activity shall be identified by the Responsibility Code.

3.3.2.7 Work Areas

All activities shall be identified in the project schedule by the work area in which the activity occurs. Activities shall not be allowed to cover more than one work area. The work area of each activity shall be identified by the Work Area Code.

3.3.2.8 Modification or Claim Number

Any activity that is added or changed by contract modification or used to justify claimed time shall be identified by a mod or claim code that changed the activity. Activities shall not belong to more than one modification or claim item. The modification or claim number of each activity shall be identified by the Mod or Claim Number.

3.3.2.9 Bid Item

All activities shall be identified in the project schedule by the Bid Item to which the activity belongs. An activity shall not contain work in more than one bid item. The bid item for each appropriate activity shall be identified by the Bid Item Code.

3.3.2.10 Phase of Work

All activities shall be identified in the project schedule by the phases of work in which the activity occurs. Activities shall not be allowed to contain work in more than one phase of work. The project phase of each activity shall be by the unique Phase of Work Code.

3.3.2.11 Category of Work

All Activities shall be identified in the project schedule according to the category of work which best describes the activity. Category of work refers, but is not limited to, the procurement chain of activities including such items as submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing. The category of work for each activity shall be identified by the Category of Work Code.

3.3.2.12 Feature of Work

All activities shall be identified in the project schedule according to the feature of work to which the activity belongs. Feature of work refers, but is not limited to a work breakdown structure for the project. The feature of work for each activity shall be identified by the Feature of Work Code.

3.3.3 Scheduled Project Completion

The schedule interval shall extend from notice-to-proceed to the contract completion date.

3.3.3.1 Project Start Date

The schedule shall start no earlier than the date that the Notice to Proceed (NTP) was acknowledged. The Contractor shall include as the first activity in

the project schedule an activity called "Start Project". The "Start Project" activity shall have: a "ES" constraint, a constraint date equal to the date that the NTP was acknowledged, and a zero day duration.

3.3.3.2 Constraint of Last Activity

Completion of the last activity in the schedule shall be constrained by the contract completion date. Calculation on project updates shall be such that if the early finish of the last activity falls after the contract completion date, then the float calculation shall reflect a negative float on the critical path. The Contractor shall include as the last activity in the project schedule an activity call "End Project". The "End Project" activity shall have: a "LF" constraint, a constraint date equal to the completion date for the project, and a zero day duration.

3.3.3.3 Early Project Completion

In the event the project schedule shows completion, the project prior to the contract completion date, the Contractor shall identify those activities that have been accelerated and/or those activities that are scheduled in parallel to support the Contractor's "early" completion. Contractor shall specifically address each of the activities noted at every project schedule update period to assist the Contracting Officer's Representative to evaluate the Contractor's ability to actually complete prior to the contract period.

3.3.4 Interim Completion Dates

Contractually specified interim completion dates shall also be constrained to show negative float if the early finish date of the last activity in that phase falls after the interim completion date.

3.3.4.1 Start Phase

The Contractor shall include as the first activity for a project phase an activity called "Start Phase X" where "X" refers to the phase of work. The "Start Phase X" activity shall have: a "ES" constraint, a constraint date equal to the date that the NTP was acknowledged, and a zero day duration.

3.3.4.2 End Phase

The Contractor shall include as the last activity in a project phase an activity called "End Phase X" where "X" refers to the phase of work. The "End Phase

X" activity shall have: a "LF" constraint, a constraint date equal to the completion date for the project, and a zero day duration.

3.3.4.3 Phase X

The Contractor shall include a hammock type activity for each project phase called "Phase X" where "X:" refers to the phase of work. The "Phase X" activity shall be logically tied to the earliest and latest activities in the phase.

3.3.5 Default Progress Data Disallowed

Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in CPM scheduling software systems. Actual Start and Finish dates on the CPM schedule shall match those dates provided from Contractor Quality Control Reports. Failure of the Contractor to document the Actual Start and Finish dates on the Daily Quality Control report for every in progress or completed activity and insure that the data contained on the Daily Quality Control reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's schedule and the inability of the Contracting Officer's Representative to evaluate Contractor progress for payment purposes.

3.3.6 Out-of-Sequence Progress

Activities that have posted progress without predecessors being completed (Out-of-Sequence Progress) shall be allowed only by the case-by-case approval of the Contracting Officer's Representative. The Contracting Officer's Representative may direct that changes in schedule logic be made to correct any or all out-of-sequence work.

3.3.7 Extended Non-Work Periods

Designation of Holidays to account for non-work periods of over [5] [_____] days shall not be allowed. Non-work periods of over [5] [_____] days shall be identified by addition of activities that represent the delays. Modifications to the logic of the project schedule shall be made to link those activities that may have been impacted by the delays to the newly added delay activities.

3.3.8 Negative Lags

Lag durations contained in the project schedule shall not have a negative value.

3.4 PROJECT SCHEDULE SUBMISSIONS

The Contractor shall provide the submissions as described below. The data disk, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION

REQUIREMENTS.

3.4.1 Preliminary Project Schedule Submission

The Preliminary Project Schedule, defining the Contractor's planned operations for the first [60] [_____] calendar days shall be submitted for approval within [20] [_____] calendar days after Notice to Proceed is acknowledged. The approved preliminary schedule shall be used for payment purposes not to exceed [60] [_____] calendar days after Notice to Proceed.

3.4.2 Initial Project Schedule Submission

The Initial Project Schedule shall be submitted for approval within [40] [_____] calendar days after Notice to Proceed. The schedule shall provide a reasonable sequence of activities which represent work through the entire project and shall be at a reasonable level of detail.

3.4.3 Periodic Schedule Updates

Based on the result of progress meetings, specified in "Periodic Progress Meetings," the Contractor shall submit periodic schedule updates. These submissions shall enable the Contracting Officer's Representative or to assess Contractor's progress. If the Contractor fails or refuses to furnish the information and project schedule data, which in the judgement of the Contracting Officer's Representative or authorized representative, is necessary for verifying the contractor's progress, the Contractor shall be deemed not to have provided an estimate upon which progress payment may be made.

3.4.4 Standard Activity Coding Dictionary

The Contractor shall submit, with the Initial Project Schedule, a coding scheme that shall be used throughout the project for all activity codes contained in the schedule. The coding scheme submitted shall list the values for each activity code category and translate those values into project specific designations. For example, a Responsibility Code Value, "ELE", may be identified as "Electrical Subcontractor." Activity code values shall represent the same information throughout the duration of the contract. Once approved with the Initial Project Schedule submission, changes to the activity coding scheme must be approved by the Contracting Officer's Representative.

3.5 SUBMISSION REQUIREMENTS

The following items shall be submitted by the Contractor for the initial submission, and every periodic project schedule update throughout the life of the project:

3.5.1 Data Disks

[Three] [_____] data disks containing the project schedule shall be provided. Data on the disks shall be in the format specified in [_____].

3.5.1.1 File Medium

Required data shall be submitted on [3.5] [_____] disks, formatted to hold [1.44 MB] [_____] of data, under the [MS-DOS] [_____] [Version 5.0] [_____] operating system.

3.5.1.2 Disk Label

A permanent exterior label shall be affixed to each disk submitted. The label shall indicate the type of schedule (Initial, Update, or Change), full contract number, project name, project location, data date, name and telephone number or person responsible for the schedule, and the [MS-DOS] [_____] version used to format the disk.

3.5.1.3 File Name

Each file submitted shall have a name related to either the schedule data date, project name, or contract number. The Contractor shall develop a naming convention that will insure that the names of the files submitted are unique. the Contractor shall submit the file naming convention to the Contracting Officer's Representative for approval.

3.5.2 Narrative Report

A Narrative Report shall be provided with each update of the project schedule. This report shall be provided as the basis of the Contractor's progress payment request. The Narrative Report shall include: a description of activities along the [4] [_____] most critical paths, a description of current and anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken.

3.5.3 Approved Changes Verification

Only project schedule changes that have been previously approved by the Contracting Officer's Representative shall be included in the schedule submission. The Narrative

Report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.

3.5.4 Schedule Reports

format for each activity for the schedule reports listed below shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float. Actual Start and Actual Finish Dates shall be printed for those activities in-progress or completed.

3.5.4.1 Activity Report

A list of all activities sorted according to [activity number] [or] ["I-NODE" AND "J-NODE"] and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.

3.5.4.2 Logic Report

A list of Preceding and Succeeding activities for every activity in ascending order by activity number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.

3.5.4.3 Total Float Report

A list of all activities sorted in ascending order of total float. Activities which have the same amount of total float shall be listed in ascending order of Early Start Dates.

3.5.4.4 Earnings Report

A compilation of the Contractor's Total Earnings on the project from the Notice to Proceed until the most recent Monthly Progress Meeting. This report shall reflect the Earnings of specific activities based on the agreements made in the field and approved between the Contractor and Contracting Officer's Representative at the most recent Monthly Progress Meeting. Provided that the Contractor has provided a complete schedule update, this report shall serve as the basis of determining Contractor Payment. Activities shall be grouped by bid item and sorted by activity numbers. This report shall: sum all activities in a bid item and provide a bid item percent; complete and sum all bid items to provide a total project percent complete. The printed report shall contain, for each activity: [Activity Number] [or] ["i-node" and "j-node"], Activity Description, Original Budgeted Amount, Total Quantity, Quantity to Date, Percent Complete (based on cost), Earnings to Date.

3.5.5 Network Diagram

The network diagram shall be required on the initial schedule submission [and on [monthly] [or] [quarterly] schedule update submissions] [_____]. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer's Representative will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.5.1 Continuous Flow

Diagrams shall show a continuous flow from left to right with no arrows from right to left. The activity or event number, description, duration, and estimated earned value shall be shown on the diagram.

3.5.5.2 Project Milestone Dates

Dates shall be shown on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.5.3 Critical Path

The critical path shall be clearly shown.

3.5.5.4 Banding

Activities shall be grouped to assist in the understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

3.5.5.5 S-Curves

Earnings curves showing projected early and late earnings and earnings to date.

3.6 PERIODIC PROGRESS MEETINGS

Progress meetings to discuss payment shall include a monthly on-site meeting or other regular intervals mutually agreed to at the preconstruction conference. During this meeting the Contractor will describe, on an activity by activity basis, all proposed revisions and adjustments to the project schedule required to reflect the current status of the project. The Contracting Officer's Representative will approve activity progress, proposed revisions, and adjustments as appropriate.

3.6.1 Meeting Attendance

The Contractor's Project Manager and Scheduler shall attend the regular progress meeting.

3.6.2 Update Submission Following Progress Meeting

A complete update of the project schedule containing all approved progress, revisions, and adjustments, based on the regular progress meeting, shall be submitted not later than 4 working days after the monthly progress meeting.

3.6.3 Progress Meeting Contents

Update information, including Actual Start Dates, Actual Finish Dates, Remaining Durations, and Cost to Date shall be subject to the approval of the Contracting Officer's Representative. The following minimum set of items which the Contractor shall address, on an activity by activity basis, during each progress meeting.

3.6.3.1 Start and Finish Dates

The Actual Start and Actual Finish dates for each activity currently in-progress or completed activities.

3.6.3.2 Time Completion

The estimated Remaining Duration for each activity in-progress. Time-based progress calculations must be based on Remaining Duration for each activity.

3.6.3.3 Cost Completion

The earnings for each activity started. Payment shall be based on earnings for each in-progress or completed activity. Payment for individual activities shall not be made for work that contains quality defects. A portion of the overall project amount may be retained based on delays of activities.

3.6.3.4 Logic Changes

All logic changes pertaining to Notice to Proceed on change orders, change orders to be incorporated into the schedule, contractor proposed changes in work sequence, corrections to schedule logic for out-of-sequence progress, [lag durations,] and other changes that have been made pursuant to contract provisions shall be specifically identified and discussed.

3.6.3.5 Other Changes

Other changes required due to delays in completion of any activity or group of activities are those delays beyond the Contractors control such as strikes and unusual weather. Also included are delays encountered due to submittals, Government Activities, deliveries or work stoppage which makes re-planning the work necessary, and when the schedule does not represent the actual prosecution and progress of the work.

3.7 REQUESTS FOR TIME EXTENSIONS

In the event the Contractor requests an extension of the contract completion date, he shall furnish such justification, project schedule data and supporting evidence as the Contracting Officer's Representative may deem necessary for a determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract. Submission of proof of delay, based on revised activity logic, duration, and costs (updated to the specific date that the delay occurred) is obligatory to any approvals.

3.7.1 Justification of Delay

The project schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved with this request. The Contracting Officer's Representative's determination as to the number of allowable days of contract extension, shall be based upon the project schedule updates in effect for the time period in question and other factual information. Actual delays that are found to be caused by the Contractor's own actions, which result in the extension of the schedule, shall not be a cause for a time extension to the contract completion date.

3.7.2 Submission Requirements

The Contractor shall submit a justification for each request for a change in the contract completion date of under two weeks based upon the most recent schedule update at the time of the Notice to Proceed or constructive direction issued for the change. Such a request shall be in accordance with the requirements of other appropriate Contract Clauses and shall include, as a minimum:

a. A list of affected activities, with their associated project schedule activity number.

b. A brief explanation of the causes of the change.

c. An analysis of the overall impact of the changes proposed.

d. A sub-network of the affected area.

Activities impacted in each justification for change shall be identified by a unique activity code contained in the required data file.

3.7.3 Additional Submission Requirements

For any request for time extension for over 2 weeks, the Contracting Officer's Representative may request an interim update with revised activities for a specific change request. The Contractor shall provide this disk within 4 days of the Contracting Officer's Representative's request.

3.8 DIRECTED CHANGES

If Notice to Proceed (NTP) is issued for changes prior to settlement of price and/or time, the Contractor shall submit proposed schedule revisions to the Contracting Officer's Representative within 2 weeks of the NTP being issued. The proposed revisions to the schedule will be approved by the Contracting Officer's Representative prior to inclusion of those changes within the project schedule. If the Contractor fails to submit the proposed revisions, the Contracting Officer's Representative may furnish the Contractor suggested revisions to the project schedule. The Contractor shall include these revisions in the project schedule until the Contractor submits revisions, and final changes and impacts have been negotiated. If the Contractor has any objections to the revisions furnished by the Contracting Officer's Representative, then the Contractor shall advise the Contracting Officer's Representative within 2 weeks of receipt of the revisions. Regardless of the objections, the Contractor will continue to update their schedule with the Contracting Officer's Representative's revisions until a mutual agreement in the revisions may be made. If the Contractor fails to submit alternative revisions within 2 weeks of receipt of the Contracting Officer's Representative's proposed revisions, the Contractor will be deemed to have concurred with the Contracting Officer's Representative's proposed revisions. The proposed revisions will then be the basis for an equitable adjustment for performance of the work.

3.9 OWNERSHIP OF FLOAT

Float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

SECTION 01012 DESIGN AFTER AWARD

EXAMPLE OF "DESIGN AFTER AWARD"
(For a Large Administrative Office Complex)

1.0 GENERAL

The Contractor shall schedule the number and composition of the design submittal phases. Design submittals are required at the preliminary (50%) and final (95%) design stages and at the design complete stage. The requirements of each design stage are listed hereinafter. The Contractor shall reflect the number and contents of the design submittals phases in the progress charts. As a maximum, the 50%, 95% and 100% complete design submittals shall be made in only one package for each of the fifteen (15) major categories listed in Paragraph, "Contents of Design Submittals," except the foundation design, utilities under the slab (all utilities together as one submittal), the Structural Interior Design, and long lead item submittals. These exceptions may be in addition to the 15 major submittals. More than one category may be combined in a submittal.

2.0 DESIGNER OF RECORD

The Contractor shall identify, for approval, the Designer of Record for each area of work. One Designer of Record may be responsible for more than one area. All areas of design disciplines shall be accounted for by a listed, registered Designer of Record. The Designer(s) of Record shall stamp, sign, and date all design drawings under their responsible discipline at each design submittal stage (see SCR - "Registration of Designers").

2.0 STAGES OF DESIGN SUBMITTALS

3.1 Preliminary Conformance Review Submittal (50%). The review of this submittal is primarily to insure that the contract documents and design analysis are proceeding in a timely manner and that the design criteria is being correctly interpreted. The submittal shall consist of the following:

1. Design analysis, developed to 50%

2. 50% complete drawings

3. CADD files of all drawings (2 copies)

Environmental permits, as required. When environmental permits are not required, the

Contractor shall provide a statement with justification to that effect.

3.2 Final Design Review Submittal (95%). The review of this submittal is to insure that the design is in accordance with directions provided the Contractor during the design process. The Contractor shall submit the following documents for Final Design Review:

1. Design analysis, developed to 95%

2. 95% complete drawings

3. Draft specifications

4. Annotated 50% review comments

3.2.1 The Design Analysis submitted for Final Design Review shall be in its final form. The Design Analysis shall include all backup material previously submitted and revised as necessary. All design calculations shall be included. The Design Analysis shall contain all explanatory material giving the design rationale for any design decisions which would not be obvious to an engineer reviewing the Final Drawings and Specifications.

3.2.2 The Contract Drawings submitted for Final Design Review shall include the drawings previously submitted which have been revised and completed as necessary. The Contractor is expected to have completed all of his coordination checks and have the drawings in a design complete condition. The drawings shall be complete at this time including the incorporation of any design review comments generated by the Preliminary design review. The drawings shall contain all the details necessary to assure a clear understanding of the work throughout construction. Shop drawings will not be considered as design drawings. All design shall be shown on design drawings prior to submittal of shop drawings.

3.2.3 The Draft Specifications on all items of work submitted for Final Design Review shall consist of legible marked-up specification sections.3.2.4 The Contractor may begin construction on portions of the work for which the Government has reviewed the Final Design Submission and has determined satisfactory for purposes of beginning construction. The ACO or COR will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal

required when, in the opinion of the ACO or COR, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

3.3 Design Complete Submittal. After the Final Design Review, the Contractor shall revise the Contract Documents by incorporating any comments generated during the Final Design Review and shall prepare final hard copy Contract Specifications. The Contractor shall submit the following documents for the design complete submittal:

1. Design analysis, in final 100% complete form

2. 100% complete drawings

3. Final specifications

4. Annotated 95% review comments

5. CADD files of all drawings (2 copies)

3.3.1 The Contractor shall submit the Design Complete Submittal not later than 30 calendar days after the Government returns the annotated Final Conformance Review Submittal.

3.3.2 If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted with the Design Complete Submittal and are satisfactory to the Government.

4.0 QUANTITY OF DESIGN SUBMITTALS

4.1 General. The documents which the Contractor shall submit to the Government for each submittal are listed and generally described hereinafter. Unless otherwise indicated, the Contractor shall submit twenty (20) copies of each item required to be submitted at the Preliminary and Final Conformance Review Submittal stages except the Structural Interior Design. The quantities of this item are indicated with the description of the item. All drawings for review submittals shall be half-size blue lines. At the Design Complete Submittal, the Contractor shall also submit five (5)
complete full size sets of drawings, five (5) complete half size sets and two copies of CADD files in Intergraph format, five (5) sets of the specifications and two (2) copies on floppy disks in ASCII.

5.0 MAILING OF DESIGN SUBMITTALS

5.1 Mail all design submittals to the Government during design and construction, using an overnight mailing service. The Govenment will furnish the Contractor addresses where each copy shall be mailed to after award of the contract. The submittals shall be mailed to four (4) different addresses.

5.2 Each design submittal shall have a transmittal letter accompanying it indicating the date, design percentage, type of submittal, list of items submitted, transmittal number and point of contact with telephone number.

6.0 COORDINATION

6.1 Written Records. Prepare a written record of each design site visit, meeting, or conference, either telephonic or personal, and furnish within five (5) working days copies to the Contracting Officer and all parties involved. The written record shall include subject, names of participants, outline of discussion, and recommendation or conclusions. Number each written record for the particular project under design in consecutive order.

6.2 Design Needs List. Throughout the life of his contract the Contractor shall furnish the COR a biweekly "needs" list for design related items. This list shall itemize in an orderly fashion design data required by the Contractor to advance the design in a timely manner. Each list shall include a sequence number, description of action item, name of the individual or agency responsible for satisfying the action item and remarks. The list will be maintained on a continuous basis with satisfied action items checked off and new action items added as required. Once a request for information is initiated, that item shall remain on the list until the requested information has been furnished or otherwise resolved. Copies of the list will be mailed to both the Administrative Contracting Officer and the agencies tasked with supplying the information.

7.0 GOVERNMENT REVIEW COMMENTS

7.1 Within 21 days after Notice to Proceed, the Contractor shall submit, for approval, a complete design schedule with all submittals and review times indicated in calendar dates. The Contractor shall update this schedule monthly.

7.2 After receipt, the Government will be allowed fourteen (14) days to review and comment on each 50% design submittal and twenty-one (21) days to review and comment on each 95% design submittal, except as noted below. For each design review submittal, the COR will furnish the Contractor comments from the various design sections and from other concerned agencies involved in the review process. The review will be for conformance with the technical requirements of the

solicitation and the Successful Offeror's (Contractor's) RFP proposal. If the Contractor disagrees technically with any comment or comments and does not intend to comply with the comment, he must clearly outline, with ample justification, the reasons for noncompliance within five (5) days after receipt of these comments in order that the comment can be resolved.

The Contractor shall furnish disposition of all comments, in writing, with the next scheduled submittal. The Contractor is cautioned in that if he believes the action required by any comment exceeds the requirements of this contract, that he should take no action and notify the COR in writing immediately. Review conferences will be held for each design submittal at (NAME OF BASE). The Contractor shall bring the personnel that developed the design submittal to the review conference. These conferences will take place the week after the twenty-one (21) day review period.

7.3 If a design submittal is over one (1) day late in accordance with the latest design schedule, the Government review period will be extended 7 days. The review conference will be held the week after the review new period. Submittals date revisions must be made in writing at least one (1) week prior to the effect submittal.

8.0 DESIGN ANALYSIS

8.1 Media and Format. Present the design analysis on 8-1/2-inch by 11-inch paper except that larger sheets may be used when required for graphs or other special calculation forms. All sheets shall be in reproducible form. The material may be typewritten, handlettered, handwritten, or a combination thereof, provided it is legible. Side margins shall be 1-inch minimum to permit side binding and head to head printing. Bottom margins shall be 1-1/4-inches, with page numbers centered 1 inch from the bottom.

8.2 Organization. Assign the several parts and sheets of the design analysis a sequential binding number and bind them under a cover indicating the name of the facility and project number, if applicable. The title page shall carry the designation of the submittal being made. The complete design analysis presented for final review with the final drawings and specifications shall carry the designation "FINAL DESIGN ANALYSIS" on the title page.

8.3 Design Calculations. Design calculations are a part of the design analysis. When they are voluminous, bind them separately from the narrative part of the design analysis. Present the design calculations in a clean and legible form incorporating a title page and index for each volume. Furnish a table of contents, which shall be an index of the indices, when there is more than one volume. Identify the source of loading conditions, supplementary sketches, graphs, formulae, and references. Explain all assumptions and conclusions. Calculation sheets shall carry the names or initials of the computer and the checker and the dates of calculations and checking. No portion of the calculations shall be computed and checked by the same person.

8.4 Automatic Data Processing Systems (ADPS). When ADPS are used to perform design calculations, the design analysis shall include descriptions of the computer programs used and copies of the ADPS input data and output summaries. When the

computer output is large, it may be divided into volumes at logical division points. Precede each set of computer printouts by an index and by a description of the computation performed. If several sets of computations are submitted, they shall be accompanied by a general table of contents in addition to the individual indices. Preparation of the description which must accompany each set of ADPS printouts shall include the following:

1. Explain the design method, including assumptions, theories, and formulae.

2. Include applicable diagrams, adequately identified.

3. State exactly the computation performed by the computer.

4. Provide all necessary explanations of the computer printout format, symbols, and abbreviations.

5. Use adequate and consistent notation.

6. Provide sufficient information to permit manual checks of the results.

9.0 DRAWINGS

9.1 Prepare all drawings on Computer-Aided Design and Drafting (CADD) so that they are well-arranged and placed for ready reference and so that they present complete information. The Contractor shall prepare the drawings with the expectation that the Corps of Engineers, in the role of supervision, will be able to construct the facility without any additional assistance from the Contractor. Drawings shall be complete, unnecessary work such as duplicate views, notes and lettering, and repetition of details shall not be permitted. Do not show standard details not applicable to the project, and minimize unnecessary wasted space. Do not include details of standard products or items which are adequately covered by specifications on the drawings. Detail the drawings such that conformance with the RFP can be checked and to the extent that shop drawings can be checked. Do not use shop drawings as design drawings. The design documents shall consist of drawings on a 30" x 42" format. The Contractor shall use standard Corps of Engineers title blocks and borders on all drawings. Submit an index of drawings with each submittal. The COR will furnish the Contractor file, drawing and specification numbers and CADD file names for inclusion in the title blocks of the drawings.

9.2 Create all drawings using CADD methods in MicroStation or AutoCAD format. Save all Design Complete CADD files as MicroStation 5.0 and AutoCAD R12.

The Contractor shall use EM 1110-1-1807 Standards Manual for U.S. Army Corps of Engineers Computer-Aided Design and Drafting (CADD) Systems as guidance to for standard

details, cell libraries, title blocks, and layer/level assignments. Drawing features not addressed in EM 1110-1-1807 shall conform to drafting standards. When a project is started the designer must contact the Mobile District Project Engineer, telephone (334) 694-3738, to obtain the project's CADD code. The sheet reference number (e.g., A-3) and the CADD code (e.g., E123)are combined to create the CADD file name (e.g., A3E123). This shall insure proper naming of files and tracking of the project within the Mobile District.

9.3 Only standard fonts provided by MicroStation or AutoCAD are allowed to be used in the creation of CADD files. No fonts created by third parties or the designer are permitted.

9.4 The uses of Reference files and Xrefs during the design stage is up to the discretion of the designers. All CADD files at Design Complete submittal shall be free standing, independent files, and not supported by reference files. All Reference files (MicroStation) and all Xrefs files (AutoCAD) shall be removed at Design Complete submittal.

9.5 Fonts, title blocks, cell libraries, and details required by the Mobile District are available on the Internet. The home page address for the Mobile District Engineering Division is http://www.sam.usace.army.mil/. For downloading, a 14,400 bps modem is recommended. Upon accessing the Mobile District home page, a list will show a break down for the CADD Standards. In order to retrieve the required CADD information, click on the subject desired, Border Sheets, Standard Details, Translation Tables, Cell, and/or Font libraries and download the files. It should be noted the files downloaded from the home page are in a zipped format and must be unzipped prior to use.

9.6 Submit all Design Complete CADD files on one of the following media.

- Diskettes - "3.5" DS/HD Using DOS "Backup" or "Copy" commands.
- 8mm Tapes - Using "TAR", "SCPIO", or "CPIO" formats.
- Read/Write Optical Disk - Intergraph format
- Colorado Backup

9.7 The building drawings shall consist of 1/8" scale minimum floor plans. Draw elevations to a 1/8" scale and other visual information as required. Draw building wall sections at a minimum of 3/8" scale.

9.8 Use a minimum scale of 1" = 30' for the site and exterior utility drawings, unless otherwise indicated. Use one drawing sheet for the overall site plan for this project.

10.0 SPECIFICATIONS

10.1 The Contractor shall submit marked-up and final specifications as required. The specifications may be any one of the major, well known master guide specification sources such as MASTERSPEC from the American Institute of Architects, SPECTEXT from Construction Specification Institute or Corps of Engineers Guide Specifications, etc. Use only one source for the project. Edit the specifications for this project and submit in marked-up or redlined draft version at the Final Review submittal stage. If the design is based on a specific product, the specification shall consist of the important features of the product. The specification shall be detailed enough such that another product meeting the specification could be substituted and it would not adversely impact the project. After incorporation of comments, submit a final, design complete specification package Submit one (1) original hard copy set of the specifications and a copy on floppy disks in ASCII. Delete all marked-out or redlined text and type in all inserted text.

10.2 Submittal Register. Develop the submittal requirements during construction during the design phase of the contract, by producing a Contractor Submittal Register during design. Attach a submittal register to each section of the specifications for the submittal requirements of that section. Prepare the Submittal Register on ENG Form 4288. The Contractor shall be responsible for listing all required submittals necessary to insure the project requirements are complied with. The Register shall identify submittal items such as shop drawings, manufacturer's literature, certificates of compliance, material samples, guarantees, test results, etc that the Contractor shall submit for review and/or approval action during the life of the construction contract. The Contractor shall place all the Submittal Register pages in an appendix of the final specifications.

11.0 SURVEYING & MAPPING

11.1 General: The Contractor shall provide any necessary survey in accordance with the requirements below. Any questions regarding survey requirements and procedures may be found in the Manual of Instructions for Geodesy, Cartography, Hydrography and Photogrammetry (Survey Manual) dated January 1988.

11.1.1 Contact CESAM-EN-MS at (334) 694-3768 regarding specific questions, manuals, station descriptions and monument designations .

11.1.2 Provide a written scope of work to the survey crew (s) performing this work. All surveying and mapping shall be accomplished under the direction of an Alabama Registered Land Surveyor.

11.2. Horizontal and Vertical Control:

11.2.1 Establish horizontal and vertical control of third order or better shall be

established from the existing control located in the vicinity of the mapping area. Descriptions and coordinates of existing monuments may be obtained from CESAM-EN-MS. Horizontal control may be established by GPS positioning, see paragraph 10.2.6.

11.2.2 Tie the horizontal control to the Local State Plane Grid Coordinate System (NAD 27 or NAD 83). Tie all elevations to the NGVD (NGVD29) with no less than third order accuracy and procedures.

11.2.3 Establish a minimum of three (3) permanent survey monuments on or adjacent to the design site. Survey monuments must be established in areas that will not be disturbed prior to and during the construction phase of the project. Stamp designation and date established on each survey monument. No less than third (3rd) order horizontal and vertical control shall be established on each survey monument. Indicate a detailed description with horizontal and vertical datum on the site plan survey and design drawings. The Survey monument established on site shall meet the minimum technical standards for the State of Alabama.

11.2.4 Record survey notes in accordance with the Survey Manual and submit original field work.

11.2.4 The Contractor shall complete and submit with field books, the field adjustment computation sheets. The Contractor shall also furnish a

sketch of the traverse on an 8 1/2" x 11" sheet of paper, showing the proper orientation of the traverse.

11.2.6 GPS CONTROL:

11.2.6.1 GPS positioning may be used to establish new horizontal control at the project site. Second Order observation procedures shall be employed as described in the Survey Manual.

11.2.6.2 All components of a system shall be test certified by the Federal Geodetic Control Committee and meet the approval of the Cartography, Geodesy and Photogrammetry Section prior to any work. This includes:

1. Receivers
2. Antennas
3. Data recording units and storage medium
4. Post processing hardware and software

11.2.6.3 Complete post processing procedures according to the Survey Manual.

11.3 Survey Requirements:

11.3.1 Establish a sufficient quantity of horizontal and vertical control to provide a detailed topographic surveys with contour lines for the area to be surveyed.

11. 3.2 Provide spot elevations effecting design of facilities such as ground elevations, elevations on existing utilities, and on visible surface features within the area to be surveyed.

11.3.3 Show and identify all surface and subsurface features within the area to be surveyed on the topographic maps. Locate these features by sufficient distance ties and label on the topographic sheets to permit accurate scaling and identification. Where possible, the Contractor shall contact the local utility companies to assist in locating underground lines. Open all manholes shall be opened and show pipe sizes and invert elevations.

11.3.4 Refer to section 6 of the Survey Manual for further specifications of procedure, data and accuracy requirements.

11.3.5 If required, the Contractor shall stake and provide coordinates and elevations for soil borings to be drilled or provide positions of the

borings if already drilled. Horizontal accuracy shall be within one (1) foot and vertical accuracy shall be within 1/10 of a foot. Provide a tabulated list of the coordinates and elevations.

11.4 Mapping Accuracy Requirements: The mapping shall meet the minimum standards for control surveys, National Map Standards as described in the Survey Manual.

11.5 Site Plan Drawing(s): Show all permanent survey monuments established on site on the final design drawing(s). Inserts on the drawing(s) and/or digital files shall show a detailed sketch of the location with description of the permanent monuments established on site. Course chart on the drawing(s) shall show coordinate and vertical values of each permanent monument. The following is a example of a course chart:

NAME OF PROJECT AND LOCATION

DESIGNATION	TYPE MARK	NORTHING	EASTING	ELEVATION

OF POINT	*DATE*	*NAD27*	*NAD 27*	NGVD29
21A-3B	CONC. MON, 1994	345,123.34 (ME)	1,234,456.00(ME)	234.56 FT.
21A-3C	REBAR	345,140.66	1,234,400.56	246.98 FT.
BB-3	REBAR	345,340.45	1,234,645.14	76.33 M
21A-3D	CONC. MON 1994	345,450.98	1,234,823.34	77.45 M

11.6 DIGITAL DATA:

11.6.1 Digitize the topographic and surface feature data into Intergraph IGDS 3D design file(s) and into a .TTN file according to the specifications as described in "Mobile District Corps of Engineers, Digital Format for Intergraph Data, Surveying/Mapping", dated 2 January 1994.

11.6.2 Following the completion of construction and prior to final acceptance of the project, the Contractor shall provide a complete set of digitized as-built design and construction drawings in Intergraph format (.dgn).11.6.3 The Contractor shall provide the Government with a copy of the design and .TTN files on a 1.2-MB high density disk formatted with MS-DOS version 3.0 or higher, or mini data cartridge. The disk(s) or mini data cartridge shall contain the cell library used to create the drawing(s) and a label shall be attached to the disk/tape showing the project name, location, date, contractor's name, name of files, format and backup procedure.

11.6.4 The Contractor shall keep a copy of the digital data for a period of one year from the date of final Government acceptance. The digital data shall be made available to the Government upon request, at no additional cost.

11.7 Quality Control: Each field book, computation sheet, topographic sheet, bridge detail and any other work submitted to the Cartography, Geodesy and Photogrammetry Section (CESAM-EN-MS) shall be reviewed and certified as correct by the Registered Land Surveyor of the State in which the project is located as follows: "I certify the data has been reviewed and meets the minimum standards for control surveys, National Map Standards and requirements of Delivery Order ___ under Contract___" (signature and registration number).

11.8 Submittals: Deliver the following items upon the completion of surveying and mapping:

Field books and adjusted computation sheets.
Sketch of traverse (8 1/2 x 11).
Station descriptions.
Intergraph digital data of the survey.
Intergraph digital data of as-built drawings.
Letter from RLS stating that mapping meets National Mapping Standards.

If applicable:

Tabulated listing of core drill hole positions.
GPS log sheets.
Satellite range data observations diskettes.
Baseline processing sheets.

12.0 CONTENTS OF DESIGN SUBMITTALS

12.1 The 50% design submittals shall contain as a minimum, the following:

12.1. Paving, Grading and Drainage

1. Explanation of objectives and factors influencing siting decisions. General overview of major site features planned, such as building orientation, drainage patterns, parking provisions, traffic circulation, provisions for the handicapped, security requirements, etc. Rationale for locating major site elements. Set back requirements or specific clearance requirements. Locations of borrow and spoil areas.

2. Requirements for flood protection. Selected storm drainage plan with respect to existing storm drainage system. Alternate schemes considered in arriving at selected plan. Disposition of storm water collected in the new system. Planned connections to the existing storm drainage system. Handling of roof runoff. Features and locations of special drainage structures. Types of materials to be specified for each installation. Selected design values to be used in the storm drainage calculations such as surface runoff coefficient, retardance coefficient, infiltration rate, and rainfall intensity based on a 10-year storm frequency. Design flood frequency and minimum elevation to provide flood protection. Planned finished floor elevations.

3. Slope stability analysis (cut and fill) and justification for any slopes steeper than 3:1 for cohesive soils and 4:1 for cohesionless soils.

4. Pavement design analysis shall include design method and all pertinent data including traffic types, volumes, soils data and any other data used to design the pavement structures. Flexible Pavements--required thickness of base and pavement based on the pavement design and established subgrade CBR. Rigid Pavements--required thickness of

nonreinforced concrete pavement and the established modulus of subgrade reaction.

5. Traffic volume and type. Particular AASHTO design vehicles for which turning movements are to be provided for and corresponding minimum turning radius.

6. Requirements for curbs, sidewalks, guardrails, traffic signs, markings, fencing, etc. Intersections or connections to existing roads and streets. Traffic routing during construction.
7. Site plan (geometry) and grading and drainage plan.

8. An overall site plan on one drawing showing all paving, grading and drainage.

9. Permit applications.

12.1.2 Geotechnical

A geotechnical report and design analysis.

12.1.3 Water Supply and Sanitary Sewage

1. Design narrative and design calculations for the water supply and wastewater systems relating to this project. Include an analysis of the existing water distribution system capability to supply sufficient quantity at adequate pressures for fire protection. If the existing water distribution system is inadequate, provide the design solution to augment the water supply to meet the fire protection requirements. Design for wastewater systems shall show sewage flows, pipe sizes, routing, elevations, pump type and capacities, wet well sizing, etc. The Contractor shall present an analysis presenting proposed corrections of deficiencies or confirming the adequacy of the existing water supply system to support the proposed building.

2. Drawings developed to the point of showing in plan the anticipated systems and layout. Rough details of pumping systems or other features requiring detail drawings.

3. Anticipated permit requirements for water and wastewater features.

12.1.4 Lawn and Landscaping Irrigation System

The design submittal shall include drawings clearly showing the piping layout and location of sprinkler heads coordinated with the landscaping plan, control valves, backflow preventers, rain check switches, controllers, etc. Indicate buildings, walks, shrubbery, trees, and other obstacles that might interfere with the proper operation of the sprinkler system. A design analysis calculating the pressures at each sprinkler head for the capacity and radius of throw is required. Details of the sprinkler head installation, valve boxes, and other irrigation appurtenances shall be submitted.

12.1. 5 Landscape, Planting and Turfing

1.. The landscape planting design narrative shall describe the analysis of existing site conditions, including an indication of existing plant materials that are to remain on the site. The statement of concept shall indicate specific site problems related to proposed development and the rationale for proposed plant locations. The narrative shall also include a list of suggested types and sizes of plant materials which are to be used, based upon the designated functional and visual criteria.

2. The concept drawings shall be prepared at a scale which corresponds with the site layout and grading plans and, likewise, shall include reference coordinates, north arrows, graphic scales and appropriate legends. An overall planting layout shall be developed and shall include enlarged detail plans of specific areas, as needed, to clarify requirements. The proposed layout shall indicate shade trees, evergreen trees, flowering trees, shrub masses, etc., according to designated functional and visual locations of planting. A legend which also indicates sizes of plants recommended for each of the above categories shall be included. The drawings and all subsequent plans shall indicate existing and proposed buildings, paved areas, signs, light standards, transformers, dumpster areas, storm drainage system, and other structures and utilities.

12.1. 6 Architectural

1. Design narrative shall provide a summary of functional space relationships, as well as circulation. There shall also be a

general statement for the rationale behind the major design decisions.

2. Plans shall indicate dimensions, columns lines, and detail references. Toilets and other specialized areas shall be drawn to 1/4" scale and shall show any needed interior features.

3. Finish schedule shall indicate material, finishes, colors and any special interior design features such as soffits, fascias, and lighting troughs, etc.

4. All required equipment shall be shown on the drawings with an equipment list.

5. List any special graphics requirements that will be provided.

6. Schedules shall be provided for both doors and windows. These schedules shall indicate sizes, types, and details for all items shown on floor plans.

7. Hardware sets using BHMA designations.

8. Composite floor plan showing all prewired workstations. Also show typical elevations of each type of workstation.

9. SID package.

12.1.7 Structural Design

1. State the live loads to be used for design. Include roof and floor loads; wind loads, lateral earth pressure loads, seismic loads, etc., as applicable.

2. Describe the method of providing lateral stability for the structural system to meet seismic and wind load requirements. Include sufficient calculations to verify the adequacy of the method.

3. Furnish calculations for all principal roof, floor, and foundation members.

4. This submittal shall include drawings showing roof and floor framing plans as applicable. Principal members will be

shown on the plans. A foundation plan shall also be furnished showing main footings and grade beams where applicable. Where beam, column, and footing schedules are used, show schedules and fill in sufficient items to indicate method to be used. Show typical bar bending diagram if applicable. Typical sections shall be furnished for roof, floor, and foundation conditions. Structural drawings for proposals and submittals shall be separate from architectural drawings.

5. Provide any computer analyses used shall be widely accepted, commercially available programs or complete documentation.

12.1.8 Plumbing

1. List all references used in the design including Government design documents and industry standards.

2. Provide justification and brief description of the types of plumbing fixtures, piping materials and equipment proposed for use.

3. Prepare detail calculations for systems such as sizing of domestic hot water heater and piping; compressed air piping, compressors and receivers; vacuum piping, vacuum pumps and receivers; natural gas piping; container gas piping and tanks.
4. Indicate locations and general arrangement of plumbing fixtures and major equipment.

5. Include plan and isometric riser diagrams of all areas including hot water, cold water, waste and vent piping. Piping layouts and risers should also include natural gas (and meter as required), LP gas, vacuum systems, compressed air systems, distilled or deionized water, medical gases and other specialty systems as applicable.

6. Include equipment and fixture schedules with descriptions, capacities, locations, connection sizes and other information as required.

12.1.9 Fire Suppression System.

1. The facility shall be fully protected by automatic sprinkler

protection.

2. List all references used in the design including Government design documents and industry standards.

3. Classify each building in accordance with fire zone, building floor areas and height and number of stories.

4. Discuss and provide description of required fire protection including extinguishing equipment, detection equipment, alarm equipment and water supply. Alarm and detection equipment shall interface to requirements of Electronic Systems.

5. Hydraulic calculations based on water flow test shall be prepared for each sprinkler system to insure that flow and pressure requirements can be met with current water supply. See Water Supply and Sanitary Sewage.

6. Prepare a plan for each floor of each building that presents a compendium of the total fire protection features being incorporated into the design. Provide the following types of information:

   - The location and rating of any fire-resistive construction such as occupancy separations, area separations, exterior walls, shaft enclosures, corridors, stair enclosures, exit passageways, etc.

   - The location and coverage of any fire detection systems.

   - The location and coverage of any fire suppression systems (sprinkler risers, standpipes, etc.).

   - The location of any other major fire protection equipment.

   - Indicate any hazardous areas and their classification.

   - Prepare a schedule describing the system with the following information: fire hazard and occupancy classifications, building construction type, GPM/square foot sprinkler density, area of operation and other as required.

12.1.10. Heating, Ventilating and Air Conditioning (HVAC)

1. Final energy analysis and calculated energy budget.

2. Design analysis including 50% design calculations.

3. Preliminary temperature control drawings and sequence of operation.

4. Preliminary EMCS design drawings and interface drawings showing connections to existing CCMS system.

5. HVAC system drawings for 50% design.

12.1.11 Mechanical Specialties (Elevators)

1. A list of criteria codes, documents and design conditions used. Reference to any authorized waiver of these criteria or codes.

2. Permits and Registration: Provide a list of all required permits and registrations for construction of items of special mechanical systems and equipment.

3. A description of the proposed control system.

4. Description, approximate capacity and location of any special mechanical equipment such as elevators, etc.

12.1.12 Interior Electrical System

1. In a narrative, indicate electrical characteristics (phase, voltage, and number of wires) for the electrical system. Provide a justification for the system chosen (economic or special condition). A life cycle analysis is required on 208Y/120 Volt systems 300 kVA and above.

2. Provide a description of the lighting system(s) to be used for all areas, referencing calculations.

3. Also include a tabulation showing the following:

   - Room name and number.

   - Lighting intensity for each room. (State the basis for

selection such as I.E.S., etc.).

- Identify the type of fixture by manufacturers catalog cut.

- State the type of wiring system to be used, such as insulated conductors installed in rigid or intermediate metal conduit, insulated conductors installed in electrical metallic tubing, nonmetallic sheathed cables, etc.

- Provide a paragraph describing any special design items such as handicapped and seismic design requirements, power filters, emergency power system, UPS, etc.

- Define any hazardous classified locations by class, division, and group as defined by the National Electrical Code. Indicate the types of equipment to be used in these areas. State the reasons for the area(s) being hazardous classified locations.

- Describe the lightning protection system to be installed. This should also include the type of grounding system planned and shown.

- Describe the basic characteristics of panelboards, switchgear, switchboards, motor control centers, transfer switches, UPS, and other major pieces of electrical equipment being provided. Short circuit and voltage drop calculations showing these values at all equipment with protective devices included shall be provided. Indicate equipment interrupting ratings and short circuit withstand ratings based on these calculations.

- Describe the electrical metering equipment to be provided.

- Provide a statement that no duct or liquid piping shall pass over and/or through any electrical space and/or room as defined by the National Electrical Code Article 384.

4. The power riser or one-line diagram shall be essentially complete except for finalization of conduit and wire sizes.

5. Panelboards, switchboards, switchgear, motor control centers, and all other utilization equipment shall be located on the floor plans. Schedules for applicable equipment shall be provided. The schedules shall include all pertinent

information to fully describe the equipment. Elevations for free standing equipment shall be provided but need not be entirely finalized.

6. Details of the layouts for electrical closets and rooms shall be shown.

7. Receptacles and lighting layouts (with wiring completed) shall be shown for typical rooms. Typical rooms are those which appear more than one time (sizes are the same) or those of the same function with different sizes.

8. Areas where nonlinear loads will be encountered shall be identified. Per the requirements of paragraphs 4c and 4g of ETL 1110-3-403, the use of 75 degree C. (minimum) conductors is required. Branch circuits serving eight-wire systems furniture or groups of nonlinear loads shall be 3#12, 1#10 N., 1#12 GND. and 1#12 Isolated GND. Feeders serving panelboards with nonlinear loads shall have the neutral conductor ampacity based on at least 1.73 times the ampacity of the phase conductors. The neutral bus in the panelboards shall have the same criteria. The simplest way to accomplish the upsizing of the neutral conductor is to provide double ampacity neutrals or parallel conductors in sizes permitted by the National Electrical Code.

9. A completed fixture schedule shall be included on the drawings.

12.1.13 Exterior Electrical Distribution System

1. In a narrative, clearly describe the electrical distribution system and state the changes to be made to the existing system to accommodate this project. State any deficiencies to be corrected and provide a description of all new work being performed.

2. State the electrical characteristics of the power supply from the service point to the main service equipment.

3. Indicate the type, number, voltage rating and connections, and kVA rating of all transformers provided.

4. State the type of conductor to be used and provide a justification for its use.

5. Include a statement describing the criteria used for the exterior design such as primary and secondary voltage drop. Describe the physical characteristics of both the underground and overhead power lines. Provide the short circuit current available at the site and state the source of this value.

6. Include a description of all exterior lighting systems included in the design. Identify the fixture types, poles and design lighting levels. Provide point-to-point calculations showing that all design levels have been achieved.

7. Describe energy conservation measures and/or techniques that are being incorporated into the design.

8. All of the exterior electrical design drawings shall be completed with all poles (power and lighting), conductors (overhead and underground), manholes and all pertinent components detailed. Details shall include but not limited to poles, manholes, ductbanks, etc. Calculations shall support all manhole locations.
9. All removals shall be shown on demolition plans.

12.1.14 Electronic Systems

Electronic Systems responsibilities include the following:

Fire Detection and Alarm System
Fire Suppression System Control
Public Address System
Telephone System
Television
Special Grounding Systems
Cathodic Protection
Intrusion Detection, Card Access System
Central Control and Monitoring System

The design analysis shall include all calculations required to support design decisions and estimates at this stage of design. The analysis shall include specific criteria furnished, conference minutes and cost analyses of all systems considered.

1. Design of the fire alarm and detection system shall include layout drawings for all devices and a riser diagram showing

the control panel, annunciator panel, all zones, radio transmitter and interfaces to other systems (HVAC, sprinkler, foam, hood dry chemical, etc.).

2. Specify all components of the Fire Suppression (FS) System in the FS section of the specifications. Provide a clear description of how the system will operate and interact with other systems such as the fire alarm system. Include a riser diagram on the drawings showing principal components and interconnections with other systems. Include FS system components on drawing legend. All components shown of floor plans shall be designated as FS system components (as opposed to Fire Alarm components). Show the location of FS control panels, HVAC control devices, sensors, and 120V power panel connections on the floor plans. Do not show the numbers or sizes of conductors or the conduit sizes for detector circuits since this could vary from one supplier to another. Indicate zoning of areas by numbers (1, 2, 3) and detectors subzoned for cross zoning by letter designations (A and B). Differentiate between ceiling mounted and underfloor detectors with distinct symbols and indicate subzone of each.
3. Show location of telephone outlets (including pay phones) on the plans. Include legend and symbol definition to indicate height above finished floor. Show Telephone Conduit System Riser Diagram. Size conduit on Riser Diagram. Do not show conduit runs between backboard and outlets on the floor plans. Underground telephone distribution conduit shall be shown on either the electrical or electronic site plan.

4. Grounding System. The specifications and drawings shall completely reflect all of the design requirements. The specifications shall require field tests (in the construction phase), witnessed by the Contracting Officer, to determine the effectiveness of the grounding system. The design shall include drawings showing existing construction. Verification of the validity of any existing drawings and/or any other data furnished by the Government shall be the responsibility of the engineering services firm.

5. Provide a statement describing the extent of any exterior work such as telephone lines, television (TV) distribution cables, duct banks, etc., outside of 5 feet from the building line.

6. Provide the name of the licensed corrosion engineer or NACE specialist. Provide the following for cathodic protection systems:

   - Clearly define areas of structures or components in soil or water to be protected.

   - Type system recommended, comparison of systems, cost estimates showing all equipment alternatives.

   - Calculations on all systems that are considered showing all information and descriptions.

   - Design of Cathodic Protection. The design shall clearly provide a thorough and comprehensive specification and drawing. The design plans and specifications shall show extent of the facilities to be protected, location and type of anodes, location of test points, details for sectionalizing an underground piping system. This design shall be complete enough to purchase equipment and build without design changes to meet criteria of protection.

7. Exterior work to be shown on electrical site plan.

   - Existing and new communications service lines, both overhead and underground, shall be properly identified.

   - Show removals and relocations, if any.

8. Provide a descriptive narrative of all electronic systems that are required for project. Define any hazardous areas (as defined in the National Electric Code) and indicate the type of equipment proposed for use in such areas. Show the location of all electronic system panels, etc., on the floor plans. Show the proposed riser diagrams for all systems. Sizes of all conduit, wires, cables, panels, etc. Provide a complete symbol legend for all devices or equipment shown on the plans. For work requiring removals or demolition, the designer shall show by use of drawings or narrative, how demolition work is to be done.

12.1.15 THE 95% DESIGN SUBMITTALS shall contain, as a minimum, the following items for all submittals:

1. A complete set of construction documents plans and specifications at the same level of detail as if the project were to be bid including a complete list of equipment, fixtures and materials to be used. The final drawings are an extension of the reviewed 50% drawings and are to include the 50% comments. The additional 5% is to complete the drawings due to the final design review comments. All details shall be shown on the drawings.

2. The design analysis is an extension of the reviewed 50% design analysis and supports and verifies that the design complies with the requirements of the project.

3. Submit marked-up specifications. The specifications shall be coordinated with the drawings and describe in detail all items shown on the drawings.

12.1.15.1 Water Supply and Sanitary Sewage The designer is required to contact Alabama Department of Environmental Management to verify the correct procedure to follow to obtain construction permits. The designer shall prepare all permit applications required to a "READY FOR SIGNATURE" condition and forward them to the Contracting Officer for appropriate signatures and submittal to the state. All contacts with state agencies shall be documented in writing and furnished to the Corps of Engineers at the 95% submittal.

12.1.15. 2 Landscape, Planting and Turfing Final design drawing(s) shall include a complete schedule of plant materials which indicates their botanical and common names, plan symbols, quantities, sizes, condition furnished, and pertinent remarks. Scale of drawing shall be prepared at 1" = 30'. Drawing shall correspond with the site layout and grading plans and reference coordinates, north arrows, graphic scales and appropriate legends. An overall planting layout shall be developed and shall include enlarged detail plans of specific areas as needed, to clarify requirements. Final design drawings, indicating proposed plants by a (+) mark for the plant location and a circle which is scaled at

approximately 2/3 the ultimate growth spread (diameter) of plants, shall also include a complete schedule of plant materials which indicates botanical and common names, plan symbols, quantities, sizes, condition furnished, and pertinent remarks. Final drawings shall also include the basic details for installation of tree, shrub, and ground cover planting, as well as any other applicable details for clarification of specific project requirements.

12.1.15.3 Architectural

1. All architectural drawings shall be coordinated with the other engineering disciplines. Ensure that the plans are in compliance with the applicable codes. It will be the Contractor's responsibility to implement the comments generated from any design review submittal as well as verify the consistency between plans and specification. The evaluation of the Contractor's submittals shall be based on degree to which the submittal meet the requirements set forth in this document and the specifications.

2. Prewired workstation composite floor plans. Prewired workstation typicals - elevations and component inventory. Prewired workstation panel identification plan with electrical outlet placement including base feed.

3. SID package.

12.1.15.4 Structural Design

1. Furnish complete checked calculations for all structural members. Incorporate any changes required by comments on 50% Design Submittal.

2. Prior to this submittal, structural drawings shall be coordinated with all other design disciplines.

3. The final structural drawings shall contain the following information as a set of general notes: The allowable soil bearing value.

   The design stresses of structural materials used.

   The design live loads used in the design of various portions of the structures.
   The design wind speed.

   The seismic zone and the "K", "C", "I" and "Z" values used in design.
4. All structural drawings and calculations shall be checked and stamped by the designer of record (a registered Professional Engineer).

12.1.15.5 Fire Suppression System

- Provide a file of the input data used in the computer program to design the fire suppression system.

12.1.15.6 Heating, Ventilating and Air Conditioning (HVAC)

1. Final design analysis of HVAC systems including final load calculations.

2. Final temperature control design drawings as required by TM 5-815-3.

3. Final EMCS design drawings and interface drawings for connecting to existing CCMS.

4. Shop drawing submittals of chiller, cooling tower, pumps, piping systems, water treatment, temperature controls, and CCMS.

12.1.15.7 Interior Electrical System

1. A coordination study with appropriate curves shall be provided to show that all protective devices have been fully coordinated. Completed short circuit calculations for the

entire electrical system shall also be provided. All equipment shall be identified by manufacturer's name and catalog number.

2. Complete voltage drop and lighting calculations shall also be provided. The voltage drop calculations shall use the same single line diagram as the short circuit calculations and shall show drops at the same locations as short circuit currents are shown. Lighting calculations (zonal cavity method for interior and point-to-point for exterior) shall be provided for all rooms and spaces and all exterior locations requiring illumination.

3. The design narrative shall be an updated version of the 50% submittal but shall reflect the design as submitted. The aforementioned calculations shall be included with the narrative. The calculations and coordination study shall have the seal of the registered engineer who performed the same affixed to the cover sheet.

4. All details shall be completed at this stage. Congested areas which cannot be clearly shown at the drawing scale, shall be shown by expanded scale drawings.

5. The drawings shall be thoroughly checked for discipline conflicts to insure that the proper electrical connections are provided for equipment of other disciplines and that there are no conflicts between the location of electrical equipment and equipment of other disciplines.

6. The drawings shall also be checked for intradiscipline conflicts.

12.1.15.8 Exterior Electrical Distribution System

1. A coordination study with appropriate curves shall be provided to show that ALL protective

devices have been fully coordinated. Completed short circuit calculations for the entire electrical system shall also be provided. All equipment shall be identified by manufacturer's name and catalog number.

2. Complete voltage drop and lighting calculations shall also be provided. The voltage drop calculations shall use the same single line diagram as the short circuit calculations and shall show drops at the same locations as short circuit currents are shown. Lighting calculations (zonal cavity method for interior and point-to-point for exterior) shall be provided for all rooms and spaces and all exterior locations requiring illumination.

3. The design narrative shall be an updated version of the 50% submittal but shall reflect the design as submitted. The aforementioned calculations shall be included with the narrative. The calculations and coordination study shall have the seal of the registered engineer who performed the same affixed to the cover sheet.

4. The drawings are a completed version of the 50% design drawings with all comments and any other changes incorporated.

5. All details shall be completed at this stage. Congested areas which cannot be clearly shown at the drawing scale, shall be shown by expanded scale drawings.

6. The drawings shall be thoroughly checked for discipline conflicts to insure that the proper electrical connections are provided for equipment of other disciplines and that there are no conflicts between the location if electrical equipment and equipment of other disciplines.

7. The drawings shall also be checked for intradiscipline conflicts.

18.0 STRUCTURAL INTERIOR DESIGN

18.1 Definition: The Structural Interior Design (SID) shall involve the selection and sampling of all applied finishes including material, color, texture and patterns necessary to complete the building's interior architectural features. The SID shall also include all prewired workstation finishes and required drawings for prewired workstations. This information shall be submitted in 3" D-ring binders, 8-1/2" x 11" format.

18.2 Present architectural finish samples in an orderly arrangements according to like rooms/areas receiving like finishes. Each like room receiving like finishes will be noted as a Color Scheme. Each Color Scheme shall have a written description of material used. This written description shall use the same material abbreviations and notes that appear on the Room Finish Schedule and Legend in the contract drawings. Present prewired workstation finishes on a color board separate from the architectural finishes. Submit the SID binders concurrently with the architectural design submittals.

18.3 Preliminary Submittals: The Contractor shall submit three complete sets of the initial SID package. The design philosophy shall use a warm neutral background color with appropriate accent colors. All SID proposals shall be reviewed and approved by the Government. The Interior Designer shall revise the SID binders after each review and update the SID to satisfy review comments. Each submittal will follow this method of review until the Government approves the completed SID package.

18.4 Final Submittal: After approval of the Preliminary Submittal, the Contractor shall submit three (3) complete sets of the approved and final Structural Interior Design package. Once the Contractor has submitted the SID and the Government has approved the submittal, all materials, finishes, colors, textures and pattern submitted and approved for this project are then considered as part of the contract and the Contractor shall furnish all approved SID finishes. No deviations will be considered.

18.5 Format: Submit all SID information and samples on 8 1/2"x 11" modules with only one foldout. The maximum foldout width shall be approximately 25 inches. No foldouts on the top or bottom of the pages. Place the project title, base, architectural firm, page number and date on the bottom of each page or module.

1. The module shall support and anchor all samples. Anchor large or heavy samples with mechanical fasteners, velcro or double sided foam tape. Rubber cement or glue will not be acceptable.

2. Assemble the 8 1/2" x 11" pages and modules in a 3" D-ring binder. Holes for placement of the modules in the binder shall be 3/8" in diameter. Each binder shall be identified on the outside spine and front cover by title, project number, percentage phase and date.

3. Material and finish samples shall indicate true pattern, color and texture. Carpet samples shall be large enough to indicate a complete pattern or design.

4. Where paint manufacturers color names and numbers are used indicated the finish of the paint such as gloss, semi-gloss, flat and so on.

5. Signage may include emblems, striping, letters, numbers and logos. The interior designer shall consider visual appearance, organization, location, structural supports (if required) and relation to other base graphics. Indicate on a separate signage sheet the location and message for all signage. Submit a sample of the signage material finish and color with the structural finishes.

6. No photographs or colored photocopies of materials will be accepted or approved.

18.6 The SID Binder shall include the following information at each design submittal in this order:

SEQUENCE OF SID SUBMITTAL

1. Title page

2. Table of contents

3. Design objectives - A statement of design objectives explaining the interior design philosophy of the facility shall be provided in the SID. Design objectives and the proposed method of accomplishing the objectives. Shall cover, when applicable, energy efficiency, safety, health, maintenance, image, personal performance of occupants and functional flexibility.

4. Interior floor plan

5. Interior sample finish boards

   Scheme A
   Scheme B
   Scheme C

Example all restrooms could be noted as color scheme "A", all general open office finishes could be noted as color scheme "B" and the main lobby could be noted as color scheme "C".

6. Room finish schedule

7. Signage

8. Signage plan

9. Prewired workstation composite floor plans

10. Prewired workstation typicals - elevations and component inventory.

11. Prewired workstation panel identification plan with electrical outlet placement including base feed.